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Volume IV — TACTICS

THE INFANTRY BATTALION IN BATTLE

1963 4

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Prepared under the direction of
The Chief of the Imperial General Staff.

THE WAR OFFICE,
, 1963 4

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INFANTRY TRAINING

VOLUME IV—TACTICS

THE INFANTRY BATTALION IN BATTLE

CHAPTER I

INTRODUCTION

"The least spectacular arm, yet without them you cannot win a battle—indeed without them you can do nothing—nothing at all".

Montgomery of Alamein

AIM

1. The aim of this pamphlet is to provide officers with a guide to the handling of an Infantry battalion group in battle.

SECTION 1.—THE TASKS OF THE INFANTRY BATTALION TODAY

The role of the Infantry battalion

2. The brunt of all types of operations which the British Army may be called upon to undertake will inevitably be borne by the Infantry. These operations may range from Internal Security commitments to full-scale war fought in any latitude, terrain or climate.

3. It is therefore essential that the Infantry soldier, his arms and equipment, and the organization of the battalion are readily adaptable to meet all these contingencies.

4. In every operation which the battalion is called upon to undertake, it will use its conventional weapons. In addition, the very existence of nuclear weapons and their possession by our potential enemies means that there is an ever-present nuclear threat.

5. The training of the Infantry to enable them to fulfil any or all of these roles is the urgent peacetime task of all Infantry officers.

SECTION 2.—TACTICAL CONSIDERATIONS

The principles of war

6. These remain applicable to all types of operations at all levels but the introduction of nuclear weapons has altered the emphasis placed on some of them. For example, although nuclear weapons make it easier to concentrate the fire power necessary to strike a decisive blow, they have at the same time greatly increased the task of developing and maintaining high morale.

Tactical doctrine

7. No army has yet had any practical experience of active operations using tactical nuclear weapons and there is therefore still plenty of scope for original tactical thinking, based on practical lines.

Basic tactical unit

8. For Internal Security operations, the basic tactical unit will continue to be the Infantry battalion, supported by detachments of other arms. For operations under non-nuclear or nuclear conditions the basic tactical unit is now the composite battle group of all arms. It is based on a lieutenant-colonel's command and includes tanks, artillery and Infantry in proportions suited to the task in hand. Clearly, therefore, close inter-arm co-operation must be the basis of sub-unit and unit training.

Armoured personnel carriers (APCs)

9. FV432 APCs are to be taken into service by Infantry battalions in BAOR. The characteristics are given in Appendix A. At the same time the Abbot 105 mm SP gun has been accepted as the basic close-support artillery piece. The performance of these two equipments gives the Infantry, and hence the battle group, the same mobility as the main battle tank. Motor battalions excepted, Infantry have not in the past been geared to thinking and manoeuvring at tank speed. This is not difficult but it does require practice. It is essential from the outset to develop boldness in thought, speed in execution, and determination to succeed, if this mobility is to be fully exploited.

Fire power

10. We have usually been able, in the past, to count on substantial conventional artillery support and, since the turning point of World War II, on powerful close air support. Neither will be forthcoming in any quantity in future .The reduction in the number of guns in a battery from eight to six and also the great increase in the size of frontages for which units and sub-units will be responsible makes it all the more important that the available

fire power should be used to maximum effect. The principle of concentration of fire assumes even greater importance than hitherto.

11. In the absence of a substantial weight of conventional artillery fire and air support, the battalion must place increased reliance on its own organic support weapons. The increase in the number of mortars from six to eight and the introduction of the GPMG in the sustained fire role is valuable in this respect.

12. There may even be occasions when the Infantry battalion, mounted in its organic APCs, will need to make full use of the supporting fire available from the GPMGs (in the LMG role) mounted on the commanders' cupolas of the APCs.

13. Clearly the aim must be to bring all available weapons to bear on targets or objectives which are within their capabilities of range and deployment. Only if this is done can we hope to offset the vast numerical superiority and weight of fire at the disposal of our potential enemy.

Night operations

14. We must take full advantage of darkness, adverse weather conditions, and smoke. This will obviously entail movement across country both in vehicles and on foot. Quick night attacks will almost certainly have to be mounted without the detailed preparation and rehearsal considered desirable in the past. To enable this to be done effectively, additional navigational, night-driving and night-aiming aids will be necessary and, on some occasions, controlled illumination of the battlefield.

15. The greatly increased emphasis now being placed on all types of operations by night must be reflected in the training of the Infantry battalion. The fact that the Soviet Army spends a third of its total training time on night training should not be overlooked.

Ground

16. The use of ground, as an area to fight over in nuclear operations, or as a means of observing and dominating the battlefield in non-nuclear operations, is of equal importance. All the basic rules governing use of ground apply equally to Infantry on their feet or mounted in APCs. In addition, radar and infra red demand equally careful use of ground at night and in poor visibility due to fog, snow, rain or sandstorms.

Air support

17. Movement by air is now a normal method of Infantry deployment, whether by long-range transport from one theatre

to another, by medium-range transport from one part of a theatre to another, or by short-range transport on the battlefield as part of the tactical plan. Infantry landed from the air must rely largely on offensive air support and on air supply for their logistic support. Air support is dealt with in detail in Chapter XXIV.

Camouflage

18. There has been a tendency in recent years to neglect this important subject. We cannot afford, in any type of operation, to disclose our slender forces through carelessness or neglect.

Deception

19. Major deception schemes are normally planned at higher formation level but in future, the possibilities of simple deception plans at battalion level should always be considered.

Timing

20. The timing of operations and movements, always of great significance, may be extremely critical under nuclear conditions. This is especially true in the case of companies moving from their hides to containing positions. If they move too soon, they may be detected and annihilated by nuclear fire. If they move too late, they may be unable to contain the enemy effectively.

21. The estimating of timings for cross-country movement in vehicles calls for careful consideration by commanders, especially when other factors such as nuclear blow-down and damaged routes are involved.

22. Infantry must probe for gaps in enemy defences. They must learn to feel for and manoeuvre around his flanks, to exploit the destructive power of a nuclear strike and to offset reduced conventional fire support. Surprise calls for deception and the ability to manoeuvre across country over long distances by day or night, for original thought, bold action and a very high degree of individual, sub-unit and unit training.

CHAPTER II

ORGANIZATION

SECTION 3.—INTRODUCTION

Task

1. The task of the Infantry is to close with the enemy and destroy him. To this end the Infantry battalion is equipped with the necessary weapons to give it the capability of sustained fighting as a self-contained unit. To carry out its task in battle, the Infantry will normally be supported by tanks, artillery and engineers. Support may also come from naval and air force units.

The nuclear threat

2. Nuclear war, or operations conducted under a nuclear threat, make no difference, except in one respect, for ground must still be physically occupied to win a war. The exception is that if there is nuclear retaliation, the enemy will be destroyed by nuclear fire. The Infantry play a major role in making surveillance of the enemy possible and containing him so that he presents nuclear targets. The equipment needed by the Infantry for this purpose is more complicated and varied than ever before, embracing APCs, radar, infra-red and other new equipment and weapons.

Peace Establishment

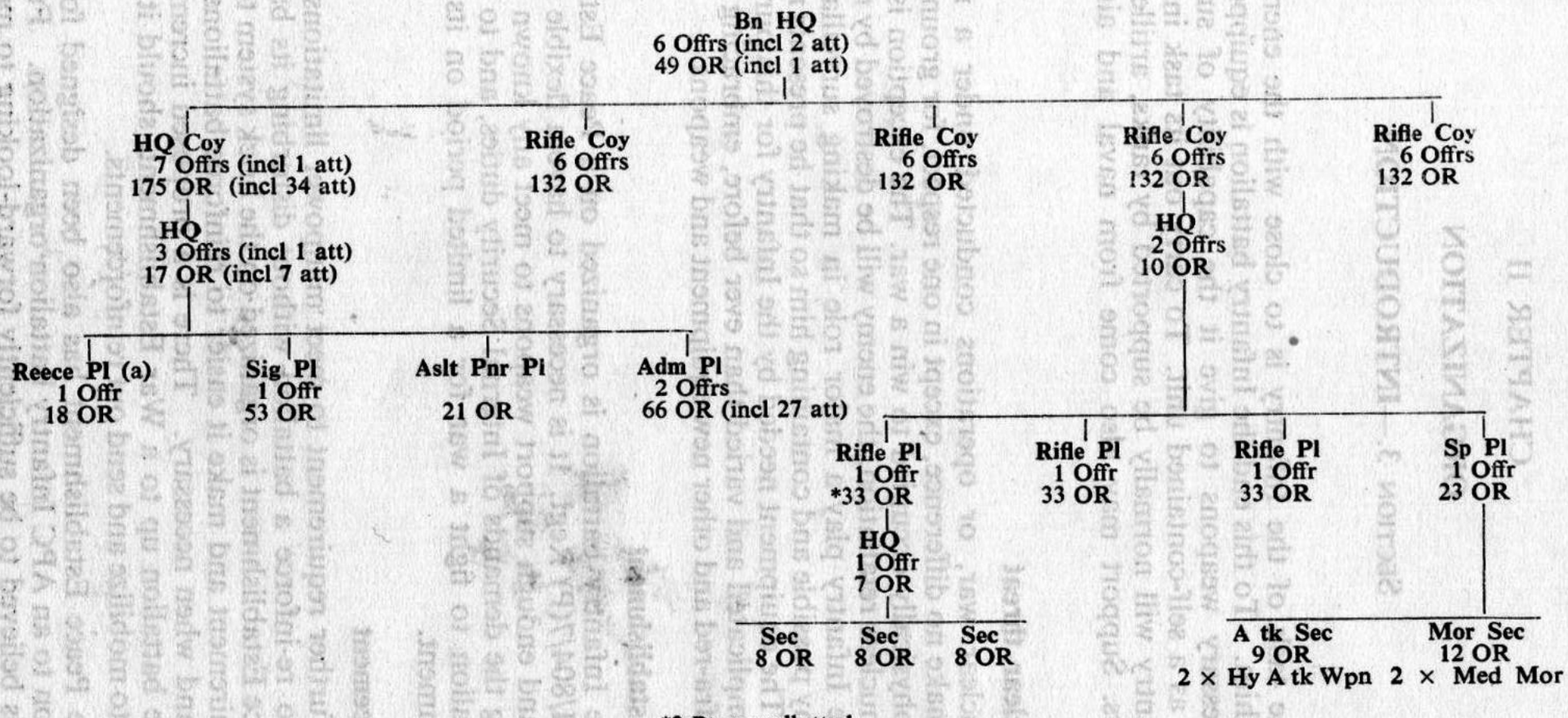
3. The Infantry battalion is organized on a Peace Establishment—II/804/7(P) Regt. It is necessary to have a flexible organization and enough support weapons to meet any known threat, including the demands of Internal Security duties, and to enable the battalion to fight a war for a limited period on its Peace Establishment.

Re-inforcement

4. A further requirement to meet manpower limitations is the ability to re-inforce a battalion without disturbing its balance. The Peace Establishment is organized on the brick system to meet this requirement and make it easier to reinforce battalions overseas as and when necessary. There is a proposed increment to bring the battalion up to a War Establishment, should it prove possible to mobilize and send out reinforcements.

5. The Peace Establishment has also been designed for easy adaptation to an APC Infantry battalion organization. Furthermore it is believed to be sufficiently forward-looking to meet the

AN INFANTRY BATTALION PEACE ESTABLISHMENT



*2 Ptes unallotted

Note (a) May be organized as Vickers MMG platoon unti GPMG (sustained fire role) is issued to rifle companies.

1. Summary of Personnel

Offrs	34
OR	717
Att	
Offrs	3
OR	35
TOTAL	789

Note: Until further orders an infantry battalion with four rifle companies will be under-implemented by six privates

2. Summary of Weapons

LMGs (to be replaced by 53 GPMGs)	65
Mers—	
3 in	8
2 in	28
Med A tk wpn (a)	65
Guns A tk 120 mm MOBAT (to be replaced by WOMBAT)	
MMGs .303 in (to be replaced by GPMG (SF) three conversion kits per rifle coy)	4

Note (a) Until the med A tk wpn is aval, the RL 3.5 in will be retained on the present scale of 20 per bn.

3. Summary of Transport

MCs	3
Car, 4 seater	1
Trucks—	
¼ ton (incl 30 FFW)	45
1 ton cargo (incl 1 FFW)	5
1 ton water	1
1 ton armd (FFW)	5
1 ton armd (amb)	1
3 ton cargo	11
3 ton cargo (w/winch)	2
Tlrs—	
½ ton cargo	32
1 ton cargo	17
½ ton water	4
1 ton water	1

4. Summary of War Increment

Offrs	3
OR	138

Includes Assistant Adjutant, Assistant Signals Officer, Assault Pioneer Officer.

Includes additional riflemen, signallers, assault pioneers and administrative personnel

Fig. 1

requirements of the 1965-70 concept of All Arms Battle Groups as at present foreseen by the Combat Development Committee.

SECTION 4.—BASIC ORGANIZATION

General

6. The outline organization of the Infantry battalion is shown in Fig. 1.

7. The Infantry battalion comprises:—

(a) A battalion HQ.

(b) Four rifle companies each of three platoons and a support platoon.

(c) An HQ company consisting of reconnaissance platoon, signal platoon, assault pioneer platoon and administrative platoon.

In general terms, the rifle company provides the bayonets which close with the enemy and is capable of operating on its own as a viable force or as part of a battle group with tank and artillery support.

Battalion HQ

8. Battalion HQ is organized as follows:—

(a) Officers

(i) Commanding Officer.
(ii) Second-in-command.
(iii) Adjutant.
(iv) Intelligence officer.

(b) Rank and file

(i) Regimental sergeant-major.
(ii) Drum/Bugle/Pipe major.
(iii) Orderly room sergeant
(iv) Orderly room clerk.
(v) Intelligence NCO
(vi) Provost sergeant.
(vii) Clerks—4.
(viii) Batmen/orderlies—2.
(ix) Defence detachment—16.
(x) Drivers—2.
(xi) Intelligence section—6.
(xii) Medical assistants (GD)—5.
(xiii) Regimental police—5.

(c) Attached

(i) RAMC medical officer
(ii) APTC Instructor—1.
(iii) RAEC education officer.

(d) Total: Officers 6;
Other Ranks 49.

(e) Notes:—

(i) The orderly room clerk will be employed at Field Records Office, where one exists.

(ii) The defence detachment may be trained as drummers, buglers and/or pipers.

HQ Company

9. Company HQ consists of:—

(a) Officers

(i) Company commander.

(ii) Second-in-command who will also be trained in NDC and assault pioneer duties.

(b) Other Ranks

(i) Company sergeant-major.

(ii) Sniper and weapon training instructor.

(iii) Company quartermaster sergeant.

(iv) Seven other ranks (including two drivers).

(c) Attached

RAPC: One officer
One staff sergeant
Six corporals.

10. *Reconnaissance platoon:* the organization, tactical employment and training of this platoon are dealt with in detail in Chapter VI.

11. *Signal platoon:* see Chapter VII.

12. *Assault pioneer platoon:* (see Chapter VIII)

13. *Administrative platoon*

(a) The administrative platoon is organized as follows:—

(i) Two quartermasters, one of whom may be employed as MT officer.

(ii) Regimental quartermaster sergeant.

(iii) Ration NCO.

(iv) Officers' Mess steward.

(v) Sergeants' Mess caterer. In the field he will be employed as medical NCO.

(vi) Technical storeman (NCO).

(vii) Transport NCO.

(viii) Two sergeants.

(ix) Thirty one other ranks including:—
Four clerks (clothing, equipment, accommodation stores and transport).

Equipment repairer
Five pioneers (bricklayer, three carpenters, painter—one to be corporal).
Two technical storemen
Butcher
Three drivers
Seven orderlies (including postal)
Five sanitary dutymen
Three storemen.

(x) Attached

RAOC: Shoemaker
REME: Three armourers (including staff sergeant)
Seven vehicle mechanics "B".
Electrician "B".
ACC: Fifteen cooks.

(b) The platoon is divided into two sections, the MT section and the quartermaster section. The MT section contains the necessary staff and stores to man the battalion transport.

Rifle company

14. (See Chapter IX).

SECTION 5—BASIC EQUIPMENT

Weapons

15. The weapons with which the Infantry battalion fights fall into three categories:—

(a) Personal weapons

7.62 mm rifle and bayonet;
Sub-machine gun.

(b) Rifle platoon weapons

Light machine gun (LMG), to be replaced by general purpose machine gun (GPMG);
2-inch mortar;
Section anti-tank weapon (ENERGA);
Medium anti-tank weapon;
3.5-inch rocket launcher;
Anti-tank and anti-personnel mines.

(c) Company support weapons

3-inch mortar;
GPMG (SF);
120-mm anti-tank gun (MOBAT), to be replaced by WOMBAT.

Communications

16. The Infantry battalion is called upon, from time to time, to undertake a variety of tasks in different parts of the world. A scale of signal equipment which would be ideal for war in Europe would probably be quite unsuitable for Internal Security operations in the tropics. For this reason there are two scales of radio equipment, the BAOR scale and the scale for other parts of the world. Full details are given in Chapter III, Communications.

Transport

17. A summary of the battalion transport is included in Fig. 1. This is sufficient to carry into battle only essential equipment and stores and those officers and other ranks whose duties require them to be transported during the battle. The bulk of the battalion marches, unless troop carrying transport is provided. To limit the number of vehicles in the forward battle area, this transport is normally organized into three separate echelons, as follows:—

F echelon — Essential vehicles required to accompany the fighting troops.

A echelon — Vehicles required to be readily available to support F echelon.

B echelon — Vehicles carrying the remainder of the battalion's legistic support.

Tactical grouping

18. To make the best use of the available resources of men, weapons and vehicles, it is necessary to re-group the Infantry battalion. This will normally be covered in a battalion's standing orders.

Section 6.—INFANTRY APC BATTALION

Outline organization

19. The outline organization of the Infantry APC battalion is shown in Fig. 2.

Manpower

20. The manpower is the same as for an Infantry Battalion (Peace) (ii/804/8(P) Regiment), under-implemented by one rifle company, except that:—

(a) All REME personnel are included in the establishment for the LAD.

(b) Infantry now fill certain former RAMC appointments.

(c) Increases include one technical QM sergeant, four transport sergeants, three technical storemen corporals and one signal sergeant.

(d) Decreases include one transport staff sergeant, three transport corporals, one signal corporal, one sanitary man and three light machine gunners.

Vehicles

21. The APC itself is the FV 432.

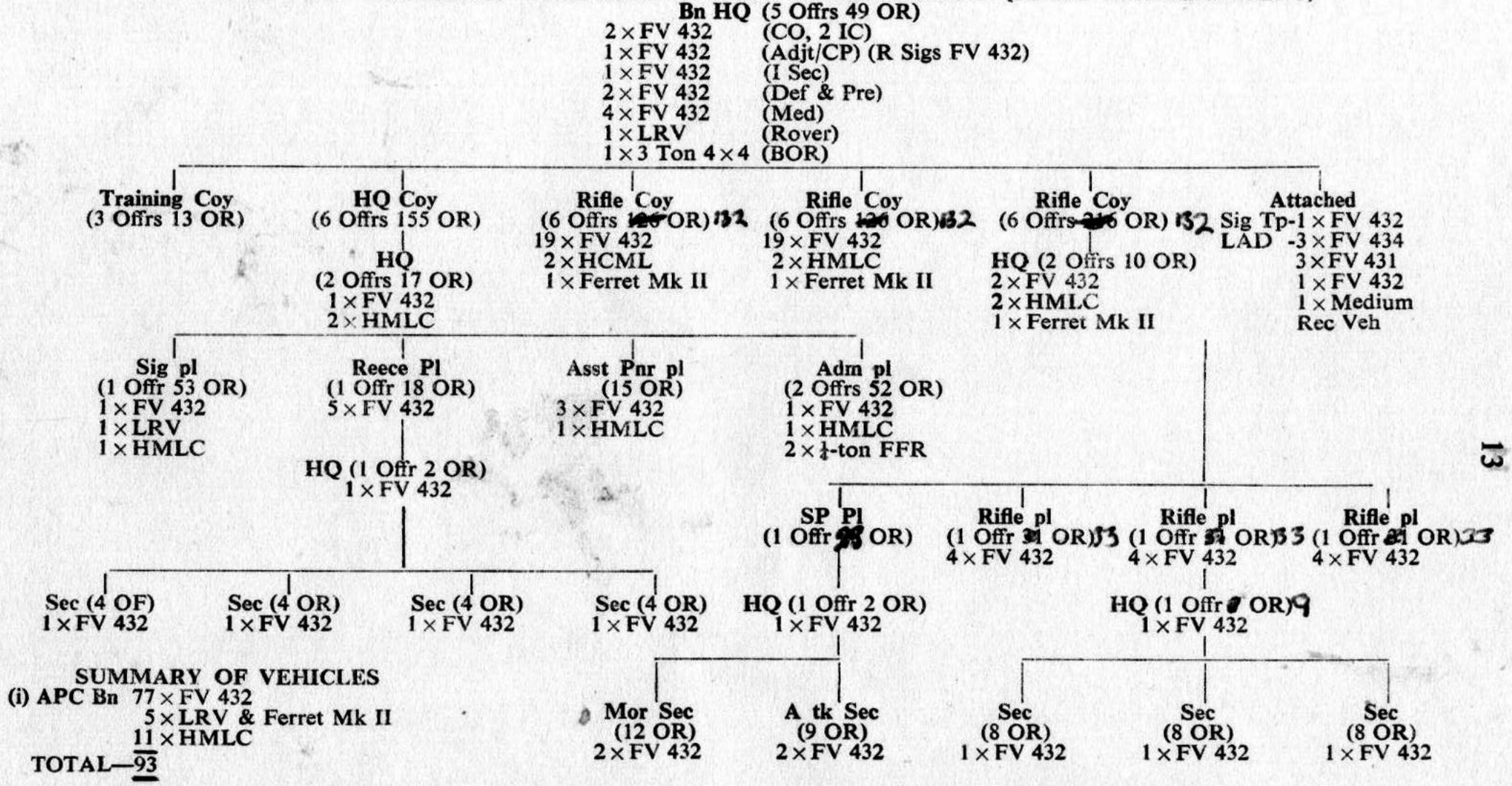
22. APC battalions are equipped with 3-ton cargo vehicles.

23. The number of APCs in the medical section has been increased to four to allow for one, fitted with a stretcher, to be detached to each rifle company. These FV 432s will be fitted with SR B47 radio.

24. The battalion commander and signal officer each have a three-seater Ferret Mark 1/2 (LRV). This does not have a rotating turret but the vehicle can be closed down in an emergency.

25. Rifle company commanders each have a two-seater Ferret Mark 2 (Reconnaissance). This has a rotating turret and periscope, and mounts a GPMG.

INFANTRY APC BATTALION—PROPOSED OUTLINE ORGANIZATION—(PEACE ESTABLISHMENT)


Bn HQ (5 Offrs 49 OR)
2 × FV 432 (CO, 2 IC)
1 × FV 432 (Adjt/CP) (R Sigs FV 432)
1 × FV 432 (I Sec)
2 × FV 432 (Def & Pre)
4 × FV 432 (Med)
1 × LRV (Rover)
1 × 3 Ton 4 × 4 (BOR)
Training Coy (3 Offrs 13 OR)
HQ Coy (6 Offrs 155 OR)
HQ (2 Offrs 17 OR) 1 × FV 432 2 × HMLC
Rifle Coy (6 Offrs OR) 132 19 × FV 432 2 × HCML 1 × Ferret Mk II
Rifle Coy (6 Offrs OR) 132 19 × FV 432 2 × HMLC 1 × Ferret Mk II
Rifle Coy (6 Offrs OR) 132
HQ (2 Offrs 10 OR) 2 × FV 432 2 × HMLC 1 × Ferret Mk II
Attached
Sig Tp-1 × FV 432
LAD -3 × FV 434 3 × FV 431 1 × FV 432 1 × Medium Rec Veh
Sig pl (1 Offr 53 OR) 1 × FV 432 1 × LRV 1 × HMLC
Reece Pl (1 Offr 18 OR) 5 × FV 432
HQ (1 Offr 2 OR) 1 × FV 432
Asst Pnr pl (15 OR) 3 × FV 432 1 × HMLC
Adm pl (2 Offrs 52 OR) 1 × FV 432 1 × HMLC 2 × ¼-ton FFR
SP Pl (1 Offr OR)
Rifle pl (1 Offr OR) 53 4 × FV 432
Rifle pl (1 Offr OR) 53 4 × FV 432
Rifle pl (1 Offr OR) 53 4 × FV 432
HQ (1 Offr OR) 9 1 × FV 432
Sec (4 OF) 1 × FV 432
Sec (4 OR) 1 × FV 432
Sec (4 OR) 1 × FV 432
Sec (4 OR) 1 × FV 432
HQ (1 Offr 2 OR) 1 × FV 432
Mor Sec (12 OR) 2 × FV 432
A tk Sec (9 OR) 2 × FV 432
Sec (8 OR) 1 × FV 432
Sec (8 OR) 1 × FV 432
Sec (8 OR) 1 × FV 432

SUMMARY OF VEHICLES

(i) APC Bn 77 × FV 432
5 × LRV & Ferret Mk II
11 × HMLC

TOTAL—93

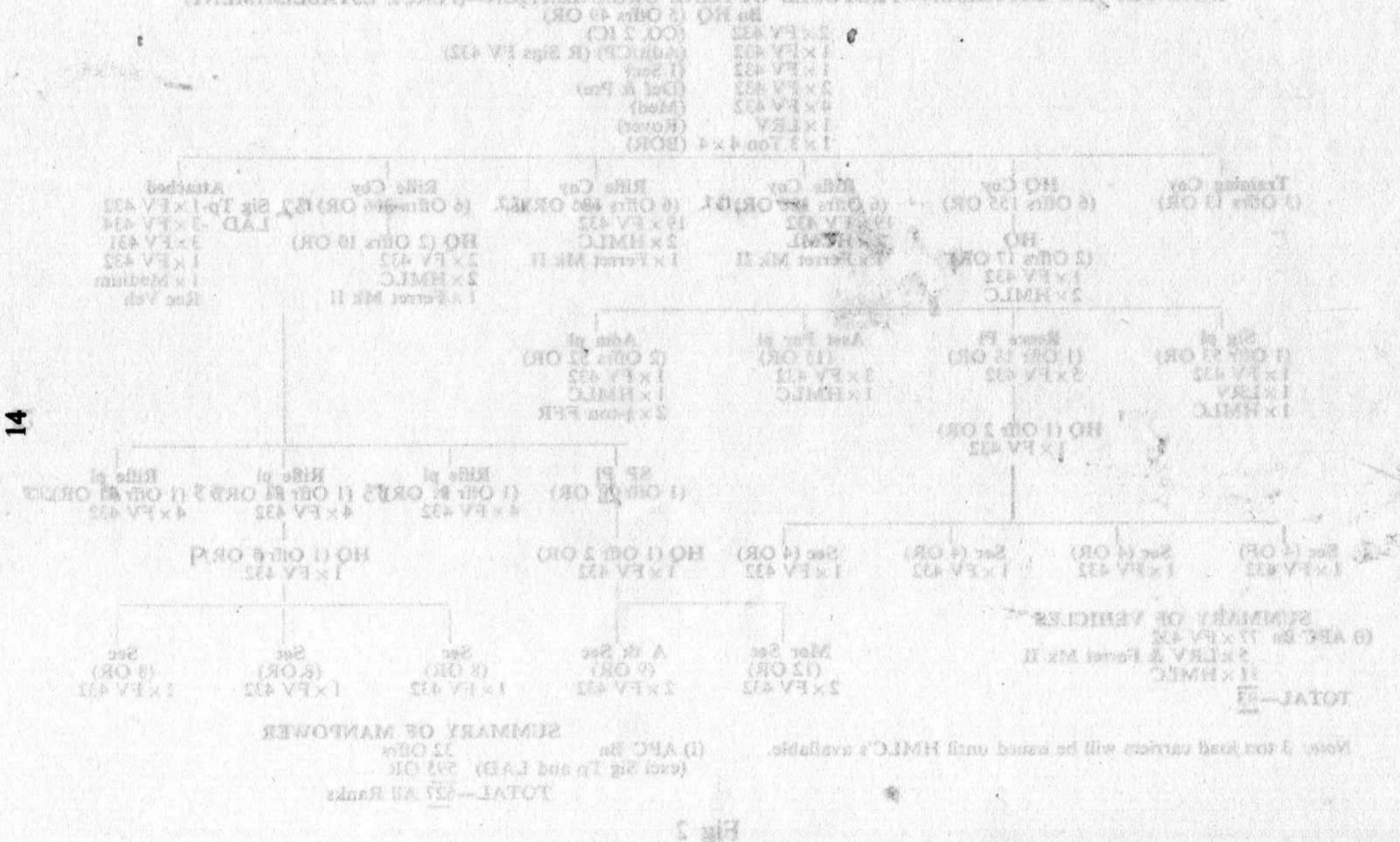
Note: 3 ton load carriers will be issued until HMLC's available.

SUMMARY OF MANPOWER

(i) APC Bn 32 Offrs
(excl Sig Tp and LAD) 595 OR

TOTAL—627 All Ranks

Fig 2



CHAPTER III

COMMUNICATIONS

SECTION 7.—THE COMMUNICATIONS PHILOSOPHY

Introduction

1. The experience of recent years in non-nuclear war and Internal Security operations and forecasts of the nature of nuclear war show quite clearly that the modern Infantry battalion must have a fully comprehensive and versatile communications system. It now has this.

2. Communications have tended in the past to be the specialized concern of the battalion signal officer but every officer of the battalion must now have a sound knowledge of the capabilites and employment of all items of Infantry signal equipment. They must also take an active interest in the maintenance of the communications system as a whole, for unless they do there will be plenty of scope for confusion and a serious threat to communications security.

The communications requirement

3. The communications of the Infantry battalion are based on radio, to provide the maximum flexibility and to compete with the requirements of fast-moving operations.

4. Two kinds of radio are held by the battalion: high frequency (HF) sets and very high frequency (VHF) sets. HF sets such as the SRs A510, 62 and A13 provide the maximum range for a given weight and size but the communications they give are subject to interference and they decline in quality between dusk and dawn. VHF sets such as the SRs A40, A41, B47 and C42 normally do not work as far as HF sets of comparable size but they give equally good quality communications by day and by night.

5. Besides these characteristic differences between the two types of battalion radio there are differing requirements for operations of various kinds: Internal Security operations in the jungle call for quite different communications from those needed for nuclear war in Europe. It is clearly impracticable to equip every Infantry battalion to meet the needs of all such roles. A compromise is therefore necessary.

The solution

6. Battalions stationed in BAOR have a nuclear war role and have accordingly been equipped with an appropriate scale of radio. Battalions in other theatres usually have several roles and

their allotted radio system is inevitably a result of compromise: they hold VHF sets for normal working and HF sets for use over distances beyond VHF capability and in terrain unfavourable to the transmission and reception of VHF signals.

The use of other agencies

7. Each time radio is used the enemy is given the chance of gaining intelligence by interception and direction finding. He can also cause confusion by jamming. Whenever possible, therefore, use should be made of other agencies: liaison officer, line, despatch rider and runner. Radio should only be used when it is essential to do so because the use of alternative agencies is impracticable. Quite apart from the security risk, radio operators must be rested and batteries conserved so that both are at peak efficiency when they are most needed.

SECTION 8.—THE RADIO SYSTEM FOR BATTALIONS IN BAOR

Frequency assignment

8. The use of Army radio is controlled by the availabliity of radio frequencies which must be shared with all arms, other services and civil authorities. Care is also necessary to avoid mutual interference between military radio equipments. Before any exercise or operation a frequency assignment is issued by the brigade signal officer or appropriate Royal Corps of Signals staff. This plan must be strictly observed to ensure efficient radio communications.

9. The assignment aims at giving each battalion:—

(a) Three VHF frequencies within the range 38-60 mcs for:—
- (i) The battalion command net.
- (ii) The reconnaissance platoon net.
- (iii) A spare.

(b) Five VHF frequencies within the range 38-60 mcs for the company mortar nets, four being working frequencies and one a spare which may be used when a battalion has established a control system by line.

(c) At least six of the nine frequencies to which the SR A40 is crystallized for use on company forward nets. Any reassignment of these frequencies within the brigade will be made by the brigade signal officer.

(d) Two HF frequencies within the range 2-10 mcs, one for working and one spare.

10. Whenever possible frequencies will be exclusively assigned but this will seldom be wholly possible. Spare frequencies, for example, are almost always assigned on a shared basis.

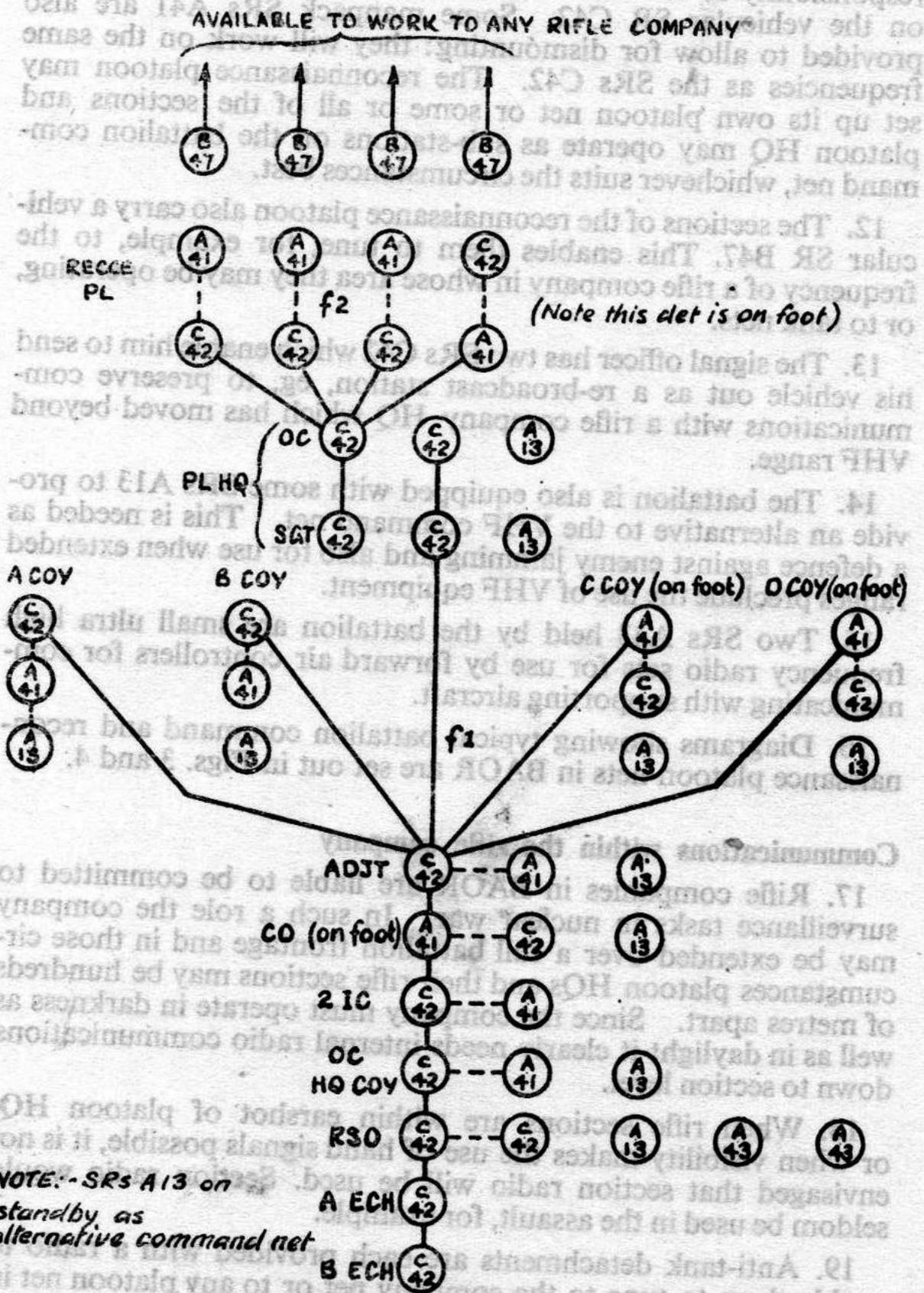


FIG. 3.—Typical battalion command and reconnaissance platoon nets in BAOR.

The battalion command net and reconnaissance platoon net

11. These nets are considered together as both are the special responsibility of the battalion signal officer. Both nets are based on the vehicular SR C42. Some manpack SRs A41 are also provided to allow for dismounting: they will work on the same frequencies as the SRs C42. The reconnaissance platoon may set up its own platoon net or some or all of the sections and platoon HQ may operate as sub-stations on the battalion command net, whichever suits the circumstances best.

12. The sections of the reconnaissance platoon also carry a vehicular SR B47. This enables them to tune, for example, to the frequency of a rifle company in whose area they may be operating, or to tank nets.

13. The signal officer has two SRs C42 which enable him to send his vehicle out as a re-broadcast station, eg, to preserve communications with a rifle company HQ which has moved beyond VHF range.

14. The battalion is also equipped with some SRs A13 to provide an alternative to the VHF command net. This is needed as a defence against enemy jamming and also for use when extended ranges preclude the use of VHF equipment.

15. Two SRs A43 held by the battalion are small ultra high frequency radio sets for use by forward air controllers for communicating with supporting aircraft.

16. Diagrams showing typical battalion command and reconnaissance platoon nets in BAOR are set out in Figs. 3 and 4.

Communications within the rifle company

17. Rifle companies in BAOR are liable to be committed to surveillance tasks in nuclear war. In such a role the company may be extended over a full battalion frontage and in those circumstances platoon HQs and their rifle sections may be hundreds of metres apart. Since the company must operate in darkness as well as in daylight it clearly needs internal radio communications down to section level.

18. When rifle sections are within earshot of platoon HQ, or when visibility makes the use of hand signals possible, it is not envisaged that section radio will be used. Section radio would seldom be used in the assault, for example.

19. Anti-tank detachments are each provided with a radio to enable them to tune to the company net or to any platoon net in operation.

20. In BAOR the rifle company HQ has an SR B47 as its forward control set. In this theatre the company HQ is considered

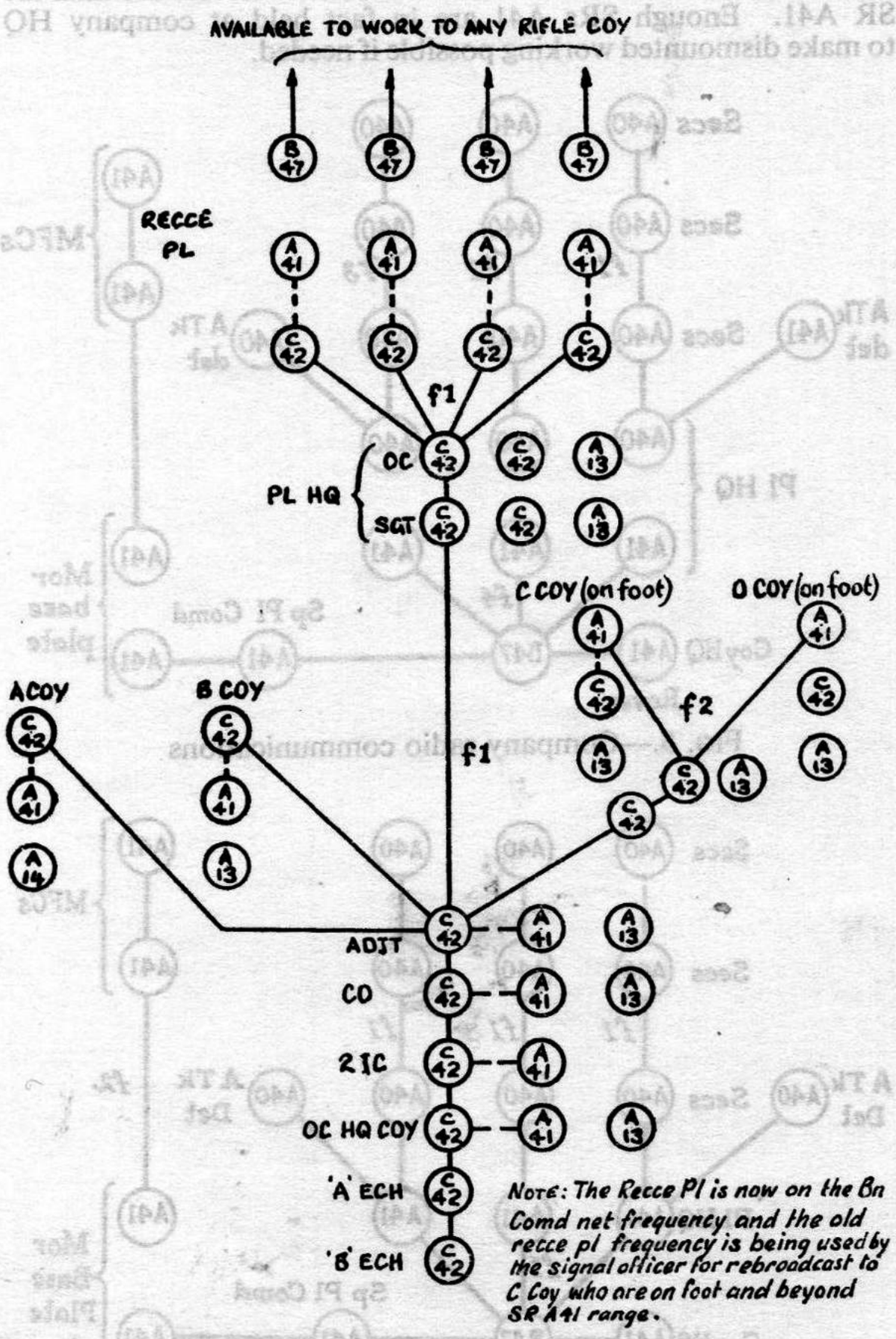

AVAILABLE TO WORK TO ANY RIFLE COY
RECCE PL
f1
OC
PL HQ
SGT
C COY (on foot)
O COY (on foot)
A COY
B COY
f2
f1
ADJT
CO
2 IC
OC HQ COY
'A' ECH
'B' ECH
Note: The Recce Pl is now on the Bn Comd net frequency and the old recce pl frequency is being used by the signal officer for rebroadcast to C Coy who are on foot and beyond SR A41 range.

FIG. 4.—Battalion command and reconnaissance platoon nets in BAOR—an alternative layout.

more likely to have a vehicle with it than might be the case elsewhere and the SR B47 is a better radio for vehicular use than the SR A41. Enough SRs A41 are in fact held at company HQ to make dismounted working possible if needed.

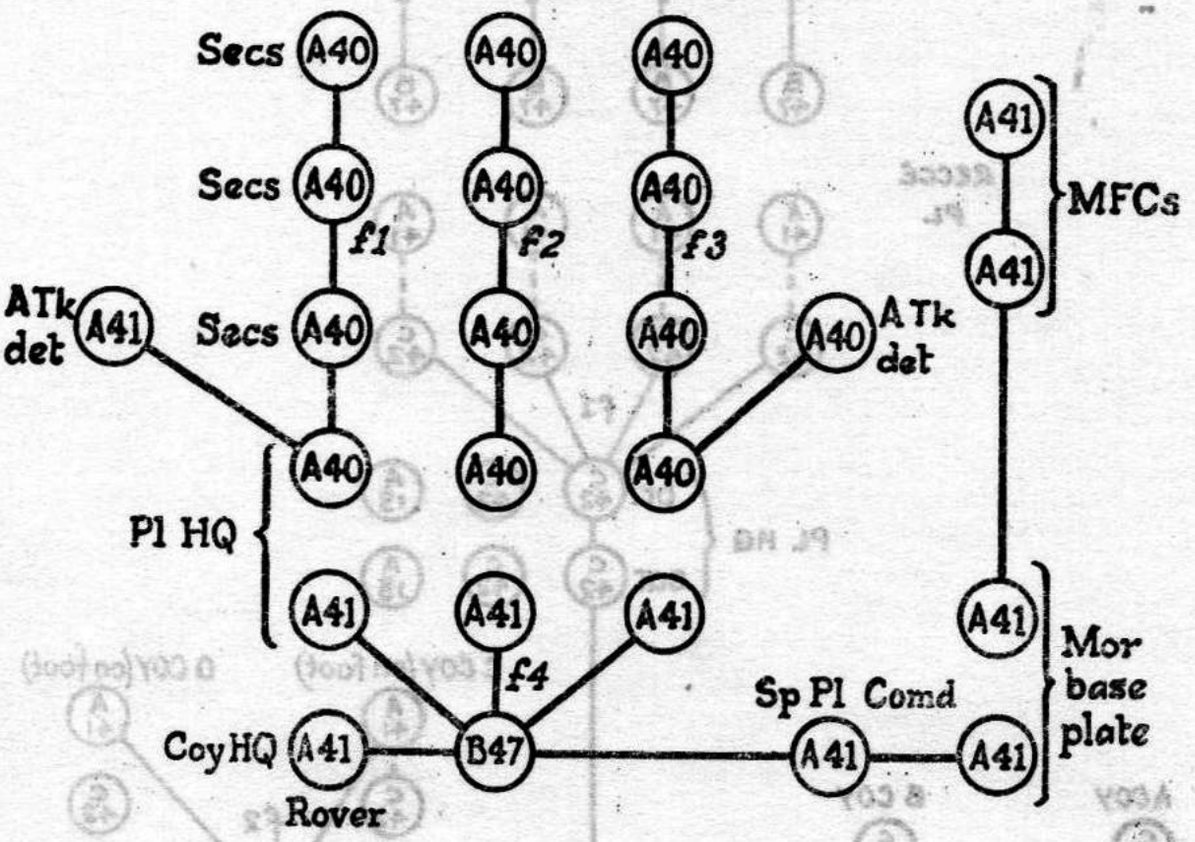


FIG. 5.—Company radio communications

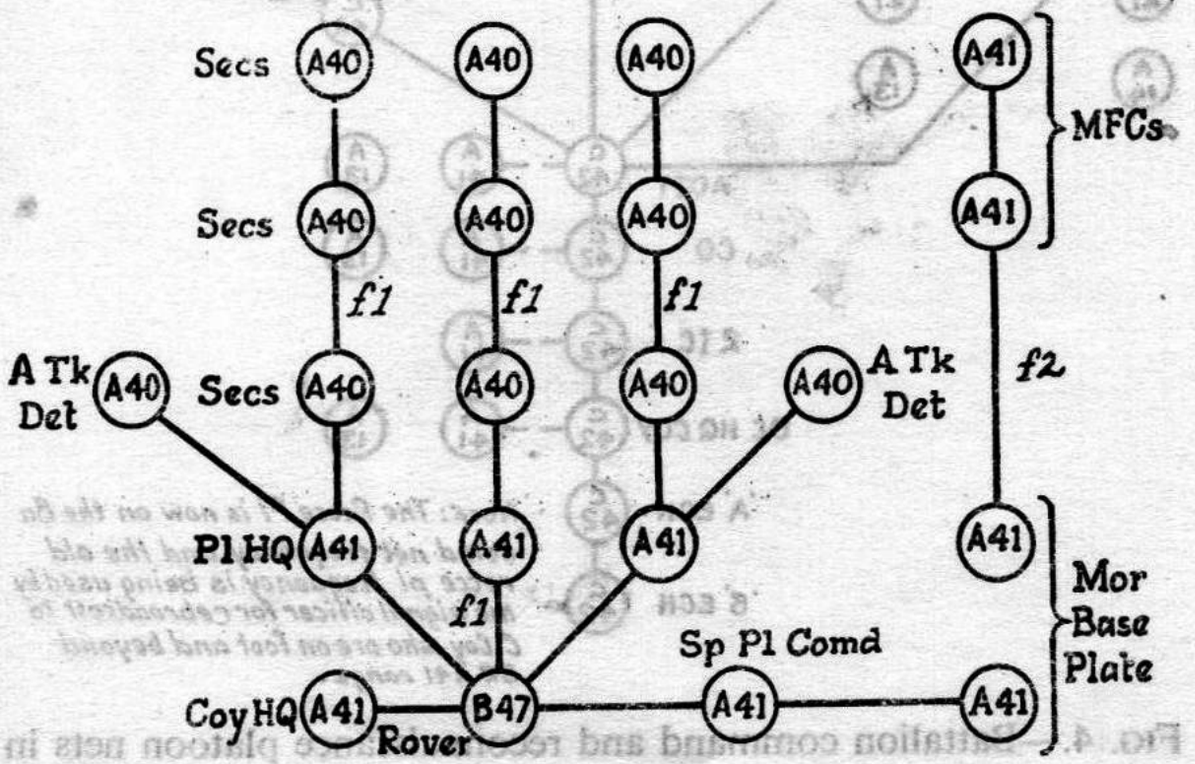


FIG. 6.—Company radio communications—an alternative layout.

21. Company communications may be organized in many ways and some are illustrated in Figs. 5 and 6.

22. Fig. 5 illustrates a full layout. In this case the company is using four of the nine SR A40 frequencies (the company/platoon net has to use an SR A40 frequency).

23. This layout is economical with frequencies but in view of the large area likely to be given to the company all stations may be out of contact with each other. Such circumstances may clearly result in confusion on the net.

24. If the section radio is not needed, company communications are reduced as shown in Fig. 7.

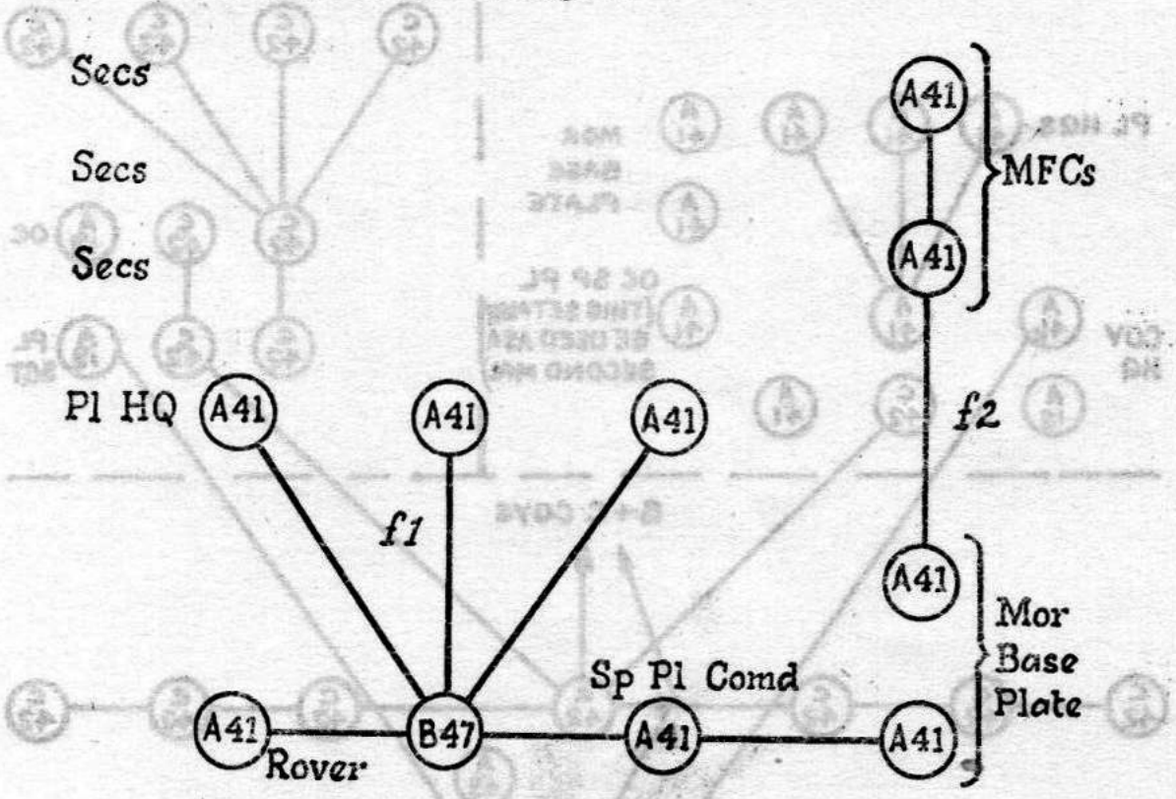
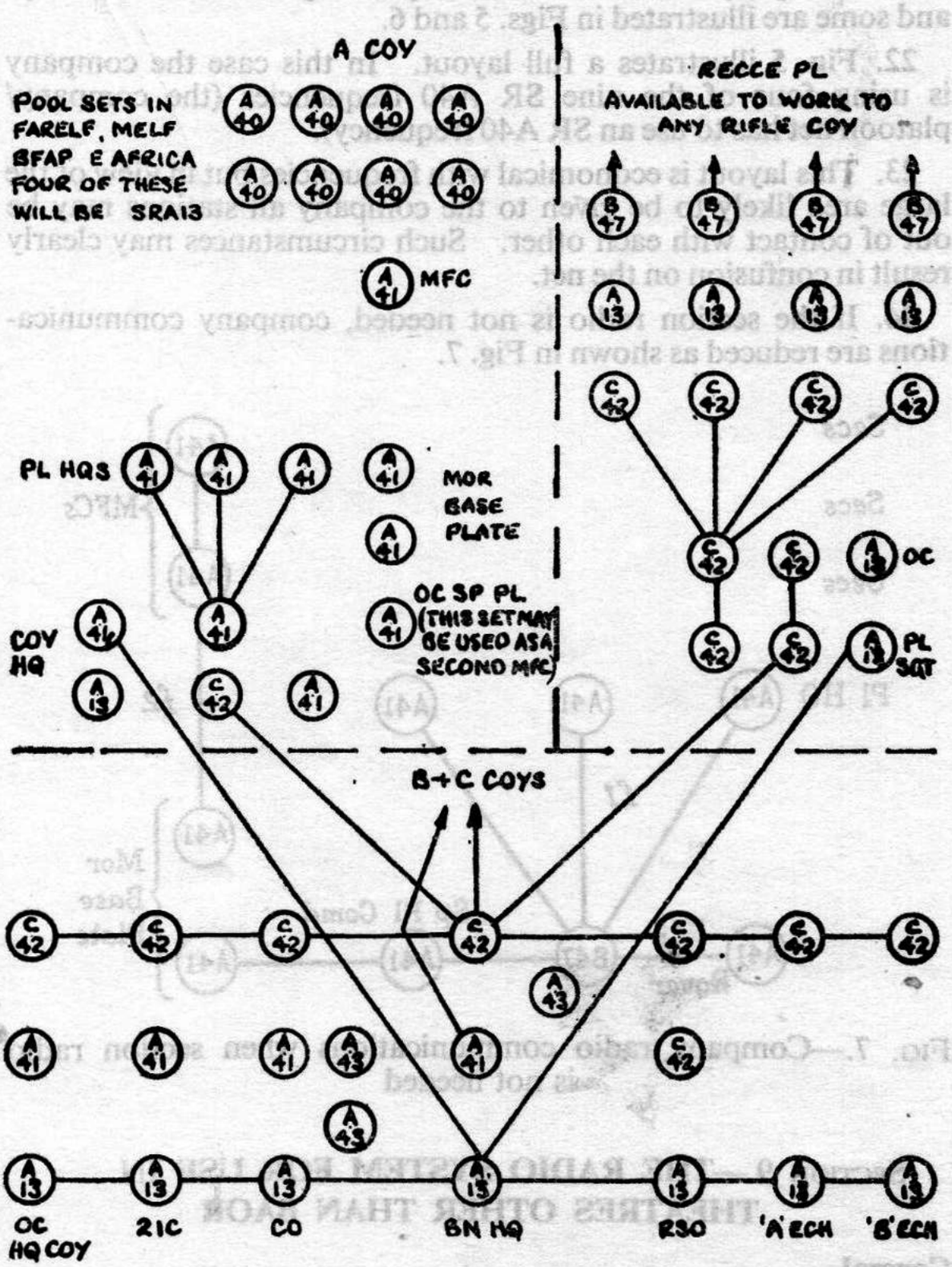


FIG. 7.—Company radio communications when section radio is not needed

SECTION 9.—THE RADIO SYSTEM FOR USE IN THEATRES OTHER THAN BAOR

General

25. In BAOR the basic problem is one of frequency assignment but in overseas theatres further afield this problem is less acute because of reduced congestion in the HF and VHF bands. The real difficulty lies in deciding whether the Infantry want HF or VHF equipment. Operations in large towns are best served by VHF sets whereas Internal Security operations in jungle and mountainous country call for HF. A compromise solution provides both. To keep the number of sets within reasonable



NOTE: Until SRs A13 are available, SR A510 and SR BCC 156 will be issued for use within rifle coys and SR 62 and SR C12 will be issued for use on the Bn Comd net.

FIG. 8.—A possible radio layout for an Infantry battalion other than in BAOR.

limits, section radio has been dispensed with. Instead, each rifle company had a pool of sets for use with patrols, listening posts and the like.

The battalion command and reconnaissance platoon net

26. Although these are similar to those in BAOR note that:—

(a) HF is employed to a much greater extent.

(b) In view of the great distances involved in some theatres, the SR A13 is regarded as a better manpack set than the SR A41 for sections of the reconnaissance platoon.

Rifle company nets

27. In the absence of section radio many of the BAOR problems do not apply. The control set on the company forward net is now an SR A41 as this is a more versatile set, generally speaking, than the SR B47.

Ground-air working

28. Each battalion holds two SRs A43, small man-pack ultra high frequency radio sets for use by forward air controllers communicating with supporting aircraft.

29. Fig. 8 is a consolidated diagram showing one of the many ways in which these radio sets might be used.

SECTION 10.—SPECIAL COMMUNICATION REQUIREMENTS FOR VARIOUS TYPES OF OPERATIONS

Advance or pursuit (not in APCs)

30. *(a)* Information and orders must be transmitted, somehow: if one means of communication fails, try another, eg, supporting arms nets.

(b) When contact has been made, communications for an attack must be provided without any hold-up.

(c) If an FOO is allotted to the vanguard he should be on the vanguard company net, not on the mainguard net. The vanguard net is basically the command net of the leading company.

(d) The O group usually moves immediately behind the Commanding Officer. The company commanders, less the commander of the vanguard company, will be there and must have their SR A41 rover sets with them.

(e) The signal officer should be near the Commanding Officer.

(f) A reserve of signal equipment should be held well forward, available without delay, and should include a vehicle line party ready to meet sudden demands for line.

Encounter battle

31. When opposition is met it must be cleared, either by the vanguard or the whole advance guard. Regrouping is probable: the FOO with the vanguard might have to change on to the main-guard net; tank troops might have to flick to company nets.

32. The signal plan must be flexible enough to cope with sudden changes and the signal officer must see that all concerned have the necessary signal instructions before the advance begins.

33. There is unlikely to be a need for line in the encounter battle but it would be a mistake to keep all the line resources right back. A sudden requirement may arise or the battalion might be held up and have to take up a defensive positiion.

Attack

34. *(a)* There must be careful planning and distribution of signal resources before the battle. Radio is the main means of communication in the attack but its use beforehand should be cut down as much as possible.

(b) Reserves must be held well forward.

(c) The need for careful co-ordination with supporting arms is stressed.

(d) Once battle is joined orders at all levels must be given by radio.

(e) A rapid review of the communications layout is called for during reorganization.

(f) Radio silence is likely to be imposed up to H hour. As the Commanding Officer must be able to talk to his companies in the assembly area and FUP, line may be needed.

(g) During the attack operators and sets may become casualties and in these circumstances the signal officer and his NCOs will have a hard task maintaining effective communications.

35. The battalion will probably take up a defensive position on reorganization. This must quickly be made secure and a complete line layout will usually have to be established. Likely priorities are:—

(a) Forward companies.

(b) OPs.

(c) Reserve companies.

(d) Local and administrative lines.

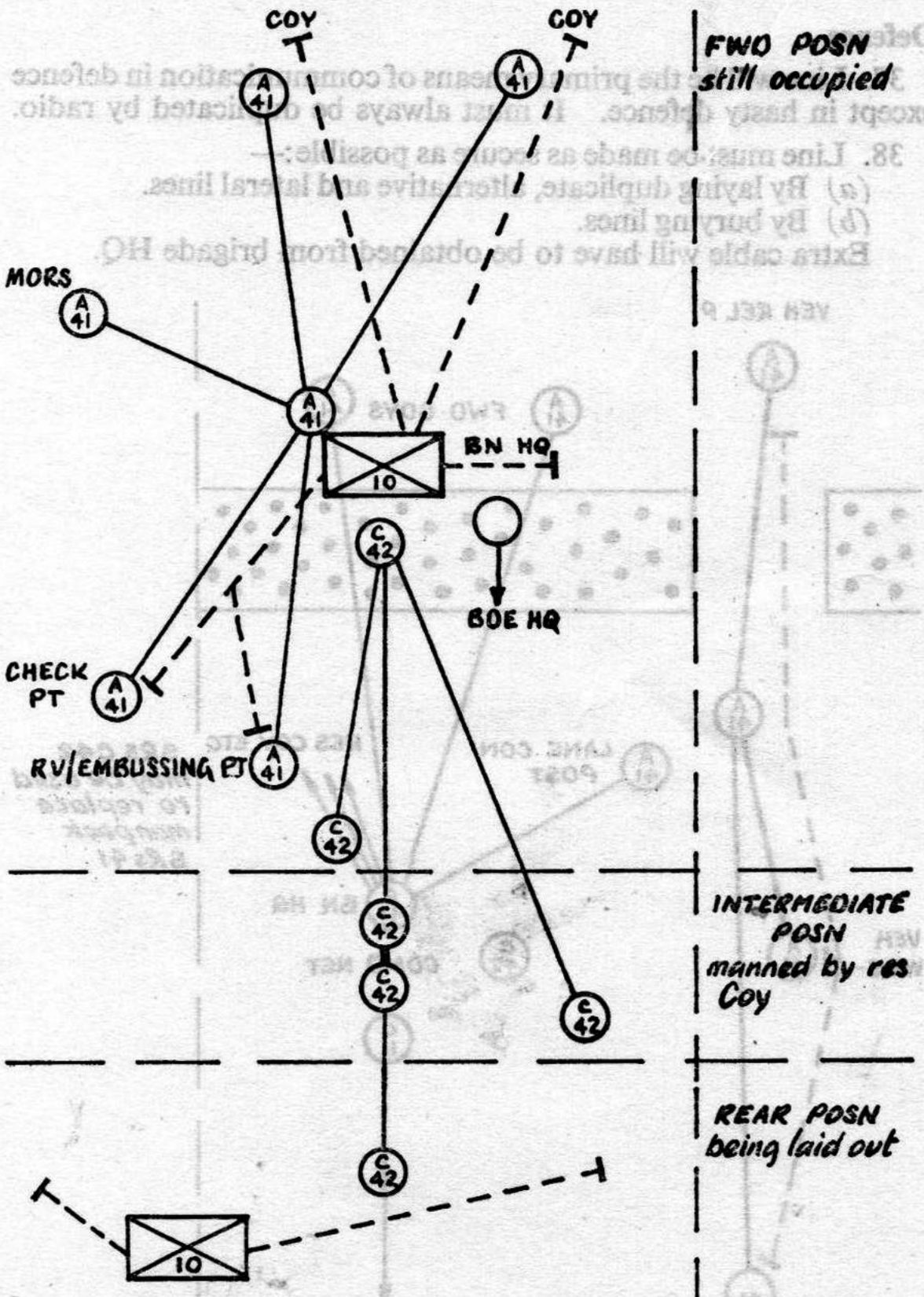


FIG. 9.—Possible battalion command communications in the withdrawal.

36. Sets and batteries must be replaced quickly and the signal officer will have to redistribute his men to replace casualties.

Defence

37. Line will be the primary means of communication in defence except in hasty defence. It must always be duplicated by radio.

38. Line must be made as secure as possible:—

(a) By laying duplicate, alternative and lateral lines.

(b) By burying lines.

Extra cable will have to be obtained from brigade HQ.

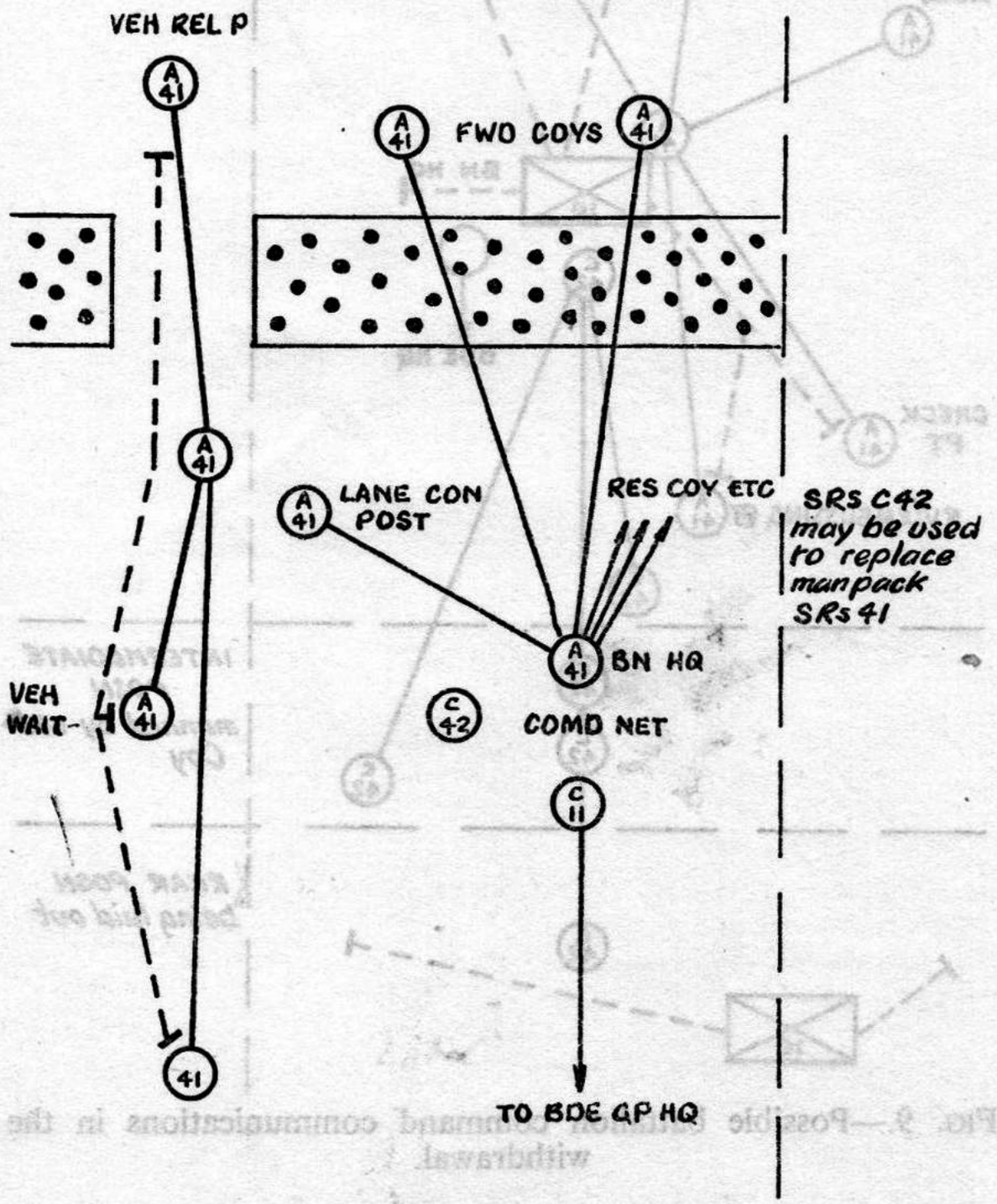


FIG. 10.—Typical communications required to control traffic through a minefield.

Withdrawal

39. Communications security is essential to the success of withdrawal operations when problems arise concerning the maintenance of communications:—

(a) In the present position.
(b) To the new position.
(c) To any intermediate position.
(d) In the new position.
(e) To check points, RVs and embussing points.

40. A suggested communications layout for the withdrawal is shown in Fig. 9. This depicts the layout just before thinning out begins. Note that:—

(a) During the withdrawal the communications resources of the battalion are going to be stretched to the utmost; the reconnaissance platoon may have to be used to provide re-broadcast facilities.
(b) Some members of the signal platoon must go back with the signal sergeant on the reconnaissance of the rear position. Line parties must be included to start laying out line communications in the new area.
(c) Communications to check points, RVs, etc, must be duplicated. There will probably be line backed by radio.

Obstacle crossing

41. The crossing of major obstacles such as minefields, rivers, etc, usually calls for a special control organization to deal with the movement of vehicles and troops. The control organization might be on these lines:—

Duty point	Officer-in-charge
Gap control	MTO
Vehicle park	2IC of HQ Company
Vehicle waiting area	MT sergeant
Vehicle release point	HQ Company commander

42. The various points and areas must have communications, usually radio backed by line. A separate net is required to avoid overloading the battalion command net. Examples of possible layouts are given in Figs. 10 and 11.

Internal Security operations

43. Internal Security operations in undeveloped countries may involve working long distance HF skywave nets and if these are to function all concerned must understand the principles of erecting long wire aerials. The battalion signal officer must also obtain correct frequencies from the brigade signal officer.

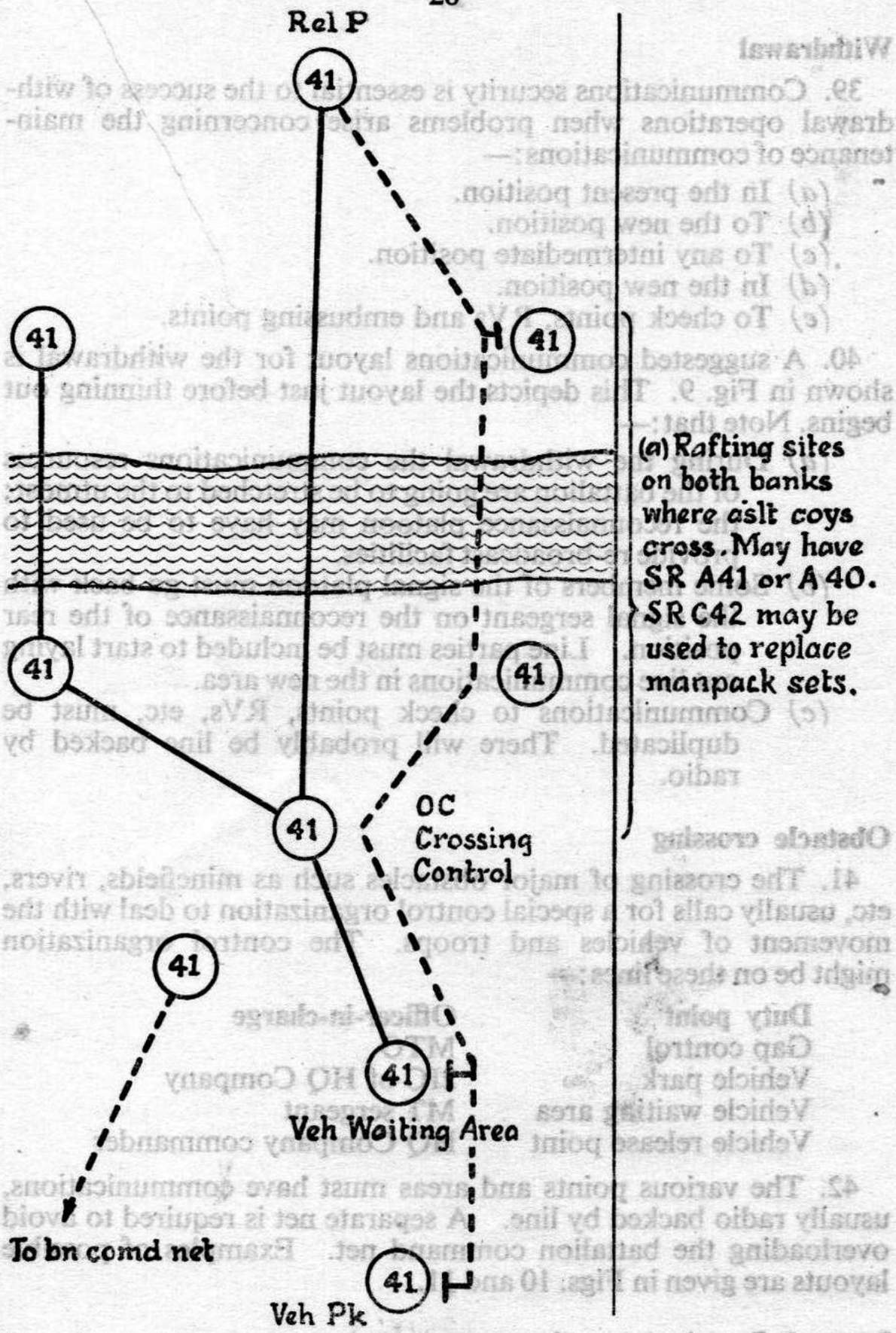


FIG. 11.—River crossing—typical communications layout required to control vehicle movement.

44. Internal Security operations in urban areas are best dealt with by VHF radio. Control stations sited on the roofs of tall buildings often help to overcome problems inherent in VHF signalling in built-up areas.

CHAPTER IV

COMMAND AND CONTROL

"Nothing in progression can rest on its original plan. We might as well think of rocking a grown man in the cradle of an infant".—Edmund Burke—Letter to the Sheriffs of Bristol, 1777

SECTION 11.—INTRODUCTION

Effect of the introduction of nuclear weapons

1. The introduction of nuclear weapons has not changed the well-tried system hitherto employed but it has made some modifications necessary. The increased dispersion of the nuclear battlefield has led to subordinate commanders being given relatively greater freedom of action at all levels. Moreover, all communication systems at present in service are liable to disruption by nuclear action, which may result in sub-units becoming cut off from direct control by their commanders. Enemy electronic measures may effectively dislocate all radio communications. For these reasons, increasing use of Operation Instructions is envisaged to provide the direction on which sub-units commanders can base their subsequent course of action if deprived of all contact with their immediate superiors once battle is joined.

Information

2. The many sources from which the battalion derives its information include:—

(a) Brigade HQ, which now has an intelligence platoon in place of the former section, and its own AAC reconnaissance flight.
(b) The battalion reconnaissance platoon.
(c) Observation by all troops in the battalion area.
(d) Surveillance devices.
(e) Air photographs and maps.
(f) Prisoners of war.
(g) Local inhabitants
(h) Higher formation Intelligence Summaries, including In-Flight and Mission Reports received as a result of offensive air support sorties.
(j) Radio nets and liaison officers of supporting arms.

Observation

3. Observation has become one of the primary roles of all troops of the battle group in nuclear operations. At the same time, it presents a problem of filtering detail at company level where no

Intelligence staff exists. The company commander may have to consider the employment of an officer, possibly the support platoon commanders, in this role when circumstances require it.

The reconnaissance platoon

4. The introduction of the reconnaissance platoon gives the commanding officer a means of surveillance over the wide frontages and large areas for which he may be responsible. Under nuclear conditions, it will be an important factor in improving the target acquisition potential within the battalion.

The intelligence officer

5. The appointment of intelligence officer must be filled by an experienced officer of the highest quality and the old conception of him as a young officer functioning as personnal assistant to the commander is no longer valid. The intelligence officer must work in close collaboration with all concerned in obtaining information by any means and especially with the artillery representative at battalion HQ. Indeed, the functions of these two officers in nuclear operations are largely complementary. One of the main duties of the intelligence officer must be to sift the mass of information reaching battalion HQ and to prepare for his Commanding Officer analyses of the enemy's likely intentions as they affect the battalion.

Communications

6. The signal platoon provides operators for the Commanding Officer, battalion HQ and the sub-units normally on the battalion command net. It also finds the operators with which rifle companies man the control station on their company command nets.

7. The platoon establishment provides for two small detachments to run a telephone exchange and a signal office. The signal office personnel are responsible for co-ordinating the despatch and receipt of all formal messages and despatches which need registering or pass through the office. These may be received or sent by radio, telephone, DR or orderly. It is the report centre for all outgoing and incoming despatches and its personnel are responsible for taking action in the event of a breakdown in any of the means of communication established within the battalion.

8. Radio is the primary means of communication once an operation is underway. Before an operation begins, and after it has ended, line will be used whenever possible. The use of line is dictated by two factors:—

(a) The need to rest radio operators and sets and to conserve batteries.

(b) The necessity of not disclosing radio frequencies prematurely.

9. Although it may be difficult and sometimes quite impracticable to lay line, especially in mobile operations, this is the policy which will normally be aimed at.

10. Orderlies and DRs are not included in the establishment of the signal platoon.

Section 12.—PERSONAL COMMAND

Visits to sub-units

11. The personal influence of the battalion commander may be much reduced in circumstances where visiting is precluded or much reduced for operation and physical reasons. Improved methods of communication are unlikely to compensate for this to any significant extent.

Mobility

12. Command is best exercised from battalion HQ, a nodal communications centre and the place where the maximum information is likely to be available. In all types of operations, however, it is often desirable for the battalion commander to be able to see what is going on and to form his own first hand impressions of the state of the battle if he is to exercise effective control. If ground contamination, shortage of time or other operational considerations make it impracticable to move by armoured vehicle, use may be made of a helicopter or light aircraft, whichever is on call or most suitable.

Command technique

13. Apart from physical difficulties in the way of roving the battlefield, sudden fluctuations in the tactical situation may necessitate the battalion commander spending much of his time at battalion HQ, whether it is stationary or on the move. If facilities for clear speech are available, this should prove no great drawback. There may, however, be times when all communications to subunits are put out of action, either through physical damage or electronic interference. These factors have given rise to the technique of using Operation Instructions as a directive to subunit commanders before each operation.

14. The Operation Instruction should include:—

(a) All available information about the enemy.
(b) An estimate of enemy intentions.
(c) The battalion commander's short term intentions.
(d) The battalion commander's long term aim.

(e) A detailed explanation of the battalion's tasks on which sub-unit commanders can make their own appreciations and plans.

(f) Any special operational guidance considered desirable.

15. An Administrative Instruction should accompany the directive when necessary.

16. The battalion commander will, of course, continue to exercise continuous personal control for as long as communications go on functioning normally.

17. The battalion commander's intentions, as expressed in these Instructions, should be made known down to section commanders' level. This will ensure that all subordinate commanders throughout the battalion are aware of what is expected of them and will be able to act in accordance with their commander's wishes should all communication fail.

SECTION 13.—BATTALION HQ

Siting

18. In all types of operations, battalion HQ is the centre of control. In nuclear war it is also an essential part of the nerve system for applying nuclear fire power and this makes it a very attractive target for enemy fire. In all circumstances the threat of enemy ground and air attack must not be overlooked. Every effort must be made to guard against the ever present threat of electronic interference by the sensible use of ground and strict attention to radio security, even in peacetime. A further factor which should be taken into consideration is the problem of VHF screening.

Size and shape

19. The size and shape of battalion HQ is determined by the nature of the operations which it is to undertake. In general, battalion HQ should be kept as small as possible, compatible with efficiency. In circumstances where the nuclear threat is neither present nor envisaged, a static organization is feasible.

Nuclear organization

20. In nuclear operations, battalion HQ should consist of not more than three APCs. This HQ is too small to be split into alternative command posts and battalion HQ must rely primarily on concealment and mobility to enable it to escape detection and destruction by enemy nuclear fire. Owing to its small size, battalion HQ is easy to conceal in any terrain provided all ranks pay careful attention to camouflage, used in conjunction with

suitable cover. Strict movement discipline must also be observed by men, vehicles and aircraft. It will be normal for battalion HQ to move between four and six times in every twenty four hour period.

Reserve command post

21. One of the rifle company HQs will always be nominated as a reserve command post before each operation and, as such, will be prepared to take control at immediate notice if the battalion command post is obliterated. Ideally, of course, a reserve command post should be formed around the second-in-command and personnel of HQ Company HQ but this is only feasible if the battalion is well up to War Establishment.

Standing instructions

22. Standing instructions for battalion HQ battle procedure should cover:—

(a) Organization of HQ including each vehicle.
(b) Standard layout of APCs.
(c) Drill for moving into and out of locations.
(d) Local protection
(e) Parking and concealment of helicopters and light aircraft.
(f) Routine and duties.

Battle procedure

23. Normal battle procedure adapted in detail to the company group organization, will continue to be used in non-nuclear operations, even when conducted under a nuclear threat. Once troops are deployed for nuclear operations, verbal briefing may be no longer possible and after nuclear war begins, the system of R and O groups may no longer be practicable. In these circumstances, increasing use will be made of Operation Instructions as described in Section 12. Battalion battle procedure is discussed in greater detail in Chapter V.

CHAPTER V

BATTALION BATTLE PROCEDURE

"Ask of me anything but time."—Napoleon

SECTION 14.—BASIC PRINCIPLES

Introduction

1. In war time is always at a premium. The limited time available before any operation must therefore be put to the best possible use by all concerned in its preparation and execution.

2. The aim of battle procedure is to ensure that the soldier is properly launched into battle without any waste of time and the minimum of fuss, knowing exactly what part he is expected to play and what fire support is available.

3. Battalion battle procedure is founded on four well-tried principles, which apply in varying degrees to each type of battle:—

(a) Anticipation at all levels of future tasks.
(b) Thorough knowledge of the grouping system.
(c) Efficient drill for reconnaissance and issue of orders.
(d) Concurrent activity in all groups.

4. The introduction of the APC, improved radio and increased mobility have speeded up the whole process of orders and deployment for the Infantry.

Anticipation of future tasks

5. The more commanders and staffs anticipate future tasks, moves and so on, the more time there will be available in which to prepare the soldier for battle. This helps to avoid confusion, breeds confidence and contributes to high morale. The aim should always to be ready for the next task, eliminating any feeling of complacency to which the completion of present tasks may give rise.

The grouping system

6. This system must be thoroughly understood by all ranks. The two executive groups are the reconnaissance group (R group) and the order group (O group). Possible compositions of these groups are given in Appendix B.

7. **R group** is designed to give a commander:—

(a) Advice and planning facilities.
(b) Communications.
(c) Staff facilities.
(d) Protection.

The numbers must be kept small, consistent with efficiency and protection, so that the group is mobile and inconspicuous.

8. **O group** consists of those who must receive and implement the commander's orders.

9. The main body normally comprises:—

(a) The Harbour Party: formed only when needed for a specific task such as the reconnaissance and layout of a new battalion area. Members rejoin their usual echelons when the task is done until they are wanted again. Command of a Harbour Party often devolves on OC HQ Company. A Harbour Party for the battalion main body usually includes representatives of all companies and specialist platoons, together with regimental police for traffic control.

(b) Fighting echelon (F echelon): the largest echelon, comprising those men and vehicles needed to fight the battle.

(c) A echelon: those men and vehicles which must be readily available to support F echelon. Tank units split this echelon into A1 and A2: APC-borne Infantry battalions may do the same.

(d) B echelon: those men and vehicles not needed in F or A echelons, including those engaged in rearward maintenance.

Efficient drill for reconnaissance and issue of orders

10. The commander must always make a time appreciation, working backwards from a given or wanted H hour. He thereby ensures a fair distribution of the time available for reconnaissance, planning and orders at each level of command. These timings must then be related to the movement of the main body and adjusted if necessary. The aim must be to allow time, if possible, for the most junior commanders, i.e., section commanders, to do a reconnaissance before giving out orders. However the time factor may be so tight that section commanders may have to give their orders while actually on the move.

11. Time for reconnaissance is almost always short and minutes must be saved by the commander's staff having ready to hand the necessary maps, air photographs and latest information about the enemy. Communications between R group and the main body must be working effectively.

12. Orders in the battalion are either given verbally to a formal O group or by radio, but confirmatory notes of report lines, codewords, nicknames and so on may be issued by the adjutant. Time can be saved by:—

(a) Early issue of a Warning Order, including the time of the O group.

(b) Good standing operating procedures (SOPs).

(c) Briefing of the O group by the Intelligence Officer before the issue of orders. At this stage he should ensure that those attending fold their maps properly and mark on them such details as boundaries and report lines.

Warning Order

13. The sooner a Warning Order is issued the sooner the machinery of deployment can be set in motion. It may include:—

(a) An outline of future operations.

(b) Earliest time of move.

(c) RV and time for O group.

(d) Grid reference of assembly area.

(e) Movement of echelons.

(f) Regrouping, including ETA of supporting units.

(g) Any limitations on reconnaissance, use of transport, etc.

The essentials of a Warning Order are those listed in *(a)*, *(b)* and *(c)* above and their issue should not be delayed if the rest are lacking.

Concurrent activity of all groups

14. The simplest way to save time is to ensure that no group or echelon is wasting time because of lack of orders. A well-practised battle procedure understood by all ranks will ensure that:—

(a) The commander can plan without undue worry as to the progress of preparation for battle within his unit.

(b) O groups are positioned to receive their orders and carry out their reconnaissance unhindered by their sub-units.

(c) Movement is smooth and efficient and reception at the new area orderly, due to the work of a harbour party.

(d) The maximum time is available for the preparation of men, weapons and equipment for the coming operation.

A suggested battalion deployment drill is shown in Appendix C.

Supporting arms

15. Planning by both the supported and the supporting arms must be simultaneous. Commanders/representatives of supporting arms must therefore accompany the commander of the formation or unit which they are to support. It is therefore essential for them to travel in vehicles with an equivalent cross-country performance to those used by the arm they are supporting and they must have the necessary radio communications.

SECTION 15.—RESPONSIBILITIES IN BATTALION HQ

The 2IC

16. The 2IC of the battalion and OC HQ Company are based on battalion HQ, ie, in F echelon. It would be wrong in principle for both of them and the Commanding Officer to be in the same location for any length of time and if the position becomes static one of these officers would be in A echelon.

17. The 2IC commands the main body for movement, gives detailed executive orders for the movement of F echelon, and is available to take command if the Commanding Officer becomes a casualty.

OC HQ Company

18. OC HQ Company is responsible to the Commanding Officer for the planning of and issue of detailed orders for:—

(a) Reconnaissance of all routes, except fighting routes.

(b) The layout of all harbour and assembly areas, FUPs and SLs.

(c) The siting and layout of battalion HQ and command post.

(d) The defensive layout of battalion HQ.

To carry out these tasks he has the help of the MTO, the harbour party, the officers of battalion HQ and the RSM.

The adjutant

19. The adjutant is in charge of the operations room/command vehicle. He mans the battalion command net, in conjunction with the 2IC and OC HQ Company, during active operations. He commands battalion HQ in the absence of OC HQ Company.

The signal officer

20. The signal officer is responsible under the orders of OC HQ Company for the detailed siting of the command post. He is available to take his turn on the roster for manning either the command net or rear link.

The Intelligence Officer

21. The Intelligence Officer is responsible for collecting and collating all Intelligence and maintaining the battle map. He may accompany the Commanding Officer when so ordered and when this occurs his other duties will be undertaken by the reconnaissance platoon commander, if he is available. Nowadays the Intelligence Officer has a full-time job at battalion HQ and is much less likely to be free to go with the Commanding Officer than was formerly the

case. The Intelligence Officer takes his turn on the roster for manning either the command net or rear link.

The reconnaissance platoon commander

22. The reconnaissance platoon commander, besides commanding his own platoon, helps the Intelligence Officer and may accompany the Commanding Officer, acting as his personal staff officer.

The 2IC of HQ Company

23. The 2IC of HQ Company commands A echelon.

The MTO

24. The MTO undertakes the reconnaissance and marking of all transport routes under the direction of OC HQ Company and the 2IC.

SECTION 16.—F ECHELON TRANSPORT

General

25. F echelon comprises the vehicles carrying weapons, equipment, ammunition and stores essential for continuing the battle. In the attack, therefore, these vehicles must reach the objective as soon as it has been cleared and reorganization has begun.

26. Many difficulties can cause the late or non-arrival of F echelon transport, of which the most common are:—

(a) Obstacles, either natural or artificial, between the Start Line and the objective.

(b) Loss of direction due to darkness and poor traffic control.

(c) Enemy interference.

Composition grouping and command

27. The system adopted by the battalion must be covered in SOPs, flexible, thoroughly understood and well practised. A suggested composition of F echelon is:—

Sub-unit	Vehicles	Trailers
Battalion HQ	7	5
HQ Company	11	5
Four rifle companies, each	32	20
Battery command and three FOQs	6	
Tank squadron*	4	

*Probably LO's scout car, squadron commander's Rover, fitter's half-track and an A1 echelon 3-ton vehicle carrying ammunition.

28. The figures given here may vary widely in different units. The vehicles are shown in company groups, each of which must have a commander. Loading is a company responsibility.

29. The MTO might command the F echelon transport group but the overall control of its movement is usually the responsibility of the battalion 2IC. How closely he exercises this control is dependent mainly on the difficulties foreseen for the movement of the F echelon. Company groups may be commanded by the company 2IC, support platoon commander, CSM, or more likely by the senior NCO of the company support weapons.

Movement

30. In the attack F echelon transport will move from the concentration area to a vehicle park near the assembly area or battalion debussing point.

31. F echelon vehicle park should meet the following requirements:—

(a) Provide reasonably hard standing.
(b) Sufficient space for forming up.
(c) Good routes in and out.
(d) Concealment from and air observation.
(e) Out of enemy earshot.
(f) Not an obvious enemy artillery target.

32. A separate commander should be found for this park if possible, one answer being to allot this duty to the 2IC of the HQ Company.

33. The Commanding Officer will decide on the locations of the vehicle park and the release point. A route reconnaissance party formed under the orders of OC HQ Company will be responsible for the reconnaissance of the route to be taken by F echelon between these two points. This party will be responsible for the marking, guiding and traffic control on this route. The inclusion of some assault pioneers may be necessary for duties on rougher sections of the route or for improving crossings over minor obstacles. This party must move as close behind the assaulting Infantry as possible to ensure that the route is ready for use by F echelon as soon as the assault has been successful. The officer or NCO commanding this party should also command the release point which he will set up at the far end of the route. He will need effective communications.

34. It is essential for the vehicle park to remain in contact with the Commanding Officer who will give the order for the echelon to move forward. The use of a despatch rider for the passage of

this order is unacceptable. There isn't time. The Commanding Officer will order the move forward as soon as his battalion is firm and the routes up are clear. In deciding when to give the order he will also be governed by:—

(a) The need to bring forward his anti-tank guns, mortars, defence stores and replenishment ammunition.

(b) The need for the better communications and working conditions which the vehicles will give him.

(c) The danger of allowing soft-skinned vehicles to become involved in the battle.

35. When the route between the vehicle park and the release point is long it may be necessary to establish an intermediate point short of the objective to which F echelon can be called forward and held pending its final move up to the release point. Such an intermediate point is termed the vehicle waiting area. The requirements are the same as for the vehicle park.

36. The move forward of F echelon is set out diagrammatically in Fig. 12.

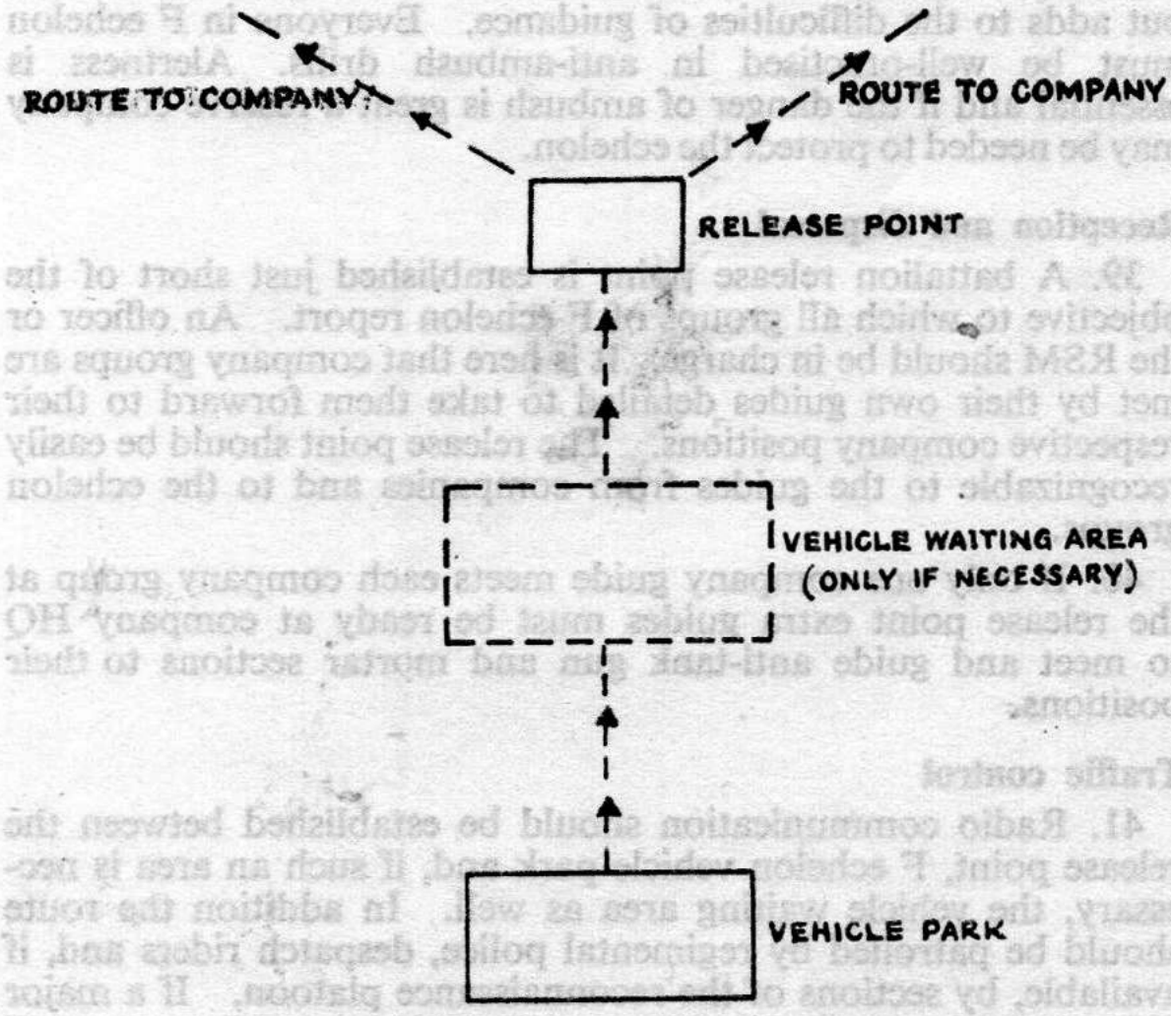


FIG. 12.—Battle procedure—move forward of F echelon.

Guidance

37. This should not be a problem by day but is not easy on a dark night when vehicles must move without lights. The following methods may be used:—

(a) Vehicles drive nose-to-tail following the officer in charge. Bunching is inevitable and this can be dangerous even on the darkest night if the battlefield is suddenly illuminated, and suicidal in an ambush.

(b) A route marked by well-concealed shaded lights or battalion signs.

(c) Move in company groups along a route or routes marked in this way. Routes may be patrolled by regimental police and sections of the reconnaissance platoon.

(d) Instead of lighted signs each group led by a man on foot. This is very slow but on a very dark night over very rough country it may be the best answer.

(e) Tape may also be used but may be caught up by vehicles, especially tracked vehicles, and dragged away.

Protection

38. Spacing helps to reduce the effects of shelling and air activity but adds to the difficulties of guidance. Everyone in F echelon must be well-practised in anti-ambush drills. Alertness is essential and if the danger of ambush is great a reserve company may be needed to protect the echelon.

Reception and dispersal

39. A battalion release point is established just short of the objective to which all groups of F echelon report. An officer or the RSM should be in charge. It is here that company groups are met by their own guides detailed to take them forward to their respective company positions. The release point should be easily recognizable to the guides from companies and to the echelon groups.

40. If only one company guide meets each company group at the release point extra guides must be ready at company HQ to meet and guide anti-tank gun and mortar sections to their positions.

Traffic control

41. Radio communication should be established between the release point, F echelon vehicle park and, if such an area is necessary, the vehicle waiting area as well. In addition the route should be patrolled by regimental police, despatch riders and, if available, by sections of the reconnaissance platoon. If a major obstacle has to be crossed a more complex control ssytem will be necessary.

CHAPTER VI

THE RECONNAISSANCE PLATOON

"In the day of good things, be not unmindful of things evil."
Ecclesiasticus XI, 27

SECTION 17.—INTRODUCTION

General

1. In all types of operations in which Infantry participation is possible, frontages will be wide, areas of responsibility great and troops few. Accurate and early information will be essential and the demand for it constant. Until now, army ground reconnaissance resources have been limited to patrols, a few armoured car regiments, which are usually corps troops, and the reconnaissance troops organic to armoured regiments. The introduction of the reconnaissance platoon is intended to increase the Infantry battalion commander's own resources for obtaining information in all types of operations, in nuclear war, non-nuclear war and Internal Security operations. It is not intended that the platoon should usurp or encroach upon the functions of other reconnaissance elements in the Army whose tasks may be more offensive and wide ranging: it is not armed or equipped to do this. The platoon gives the Commanding Officer a means of surveillance which is valuable, having regard to the large areas for which he may be made responsible. Under nuclear conditions, it will be an important factor in improving the target acquisition potential within the battalion.

Organization

2. The reconnaissance platoon comprises a platoon HQ and four sections the whole commanded by an officer. Platoon HQ is mounted in two APCs or Land Rovers; each section is carried in an APC or Land Rover, according to whether the battalion is equipped with APCs or not. Platoon HQ and each section are administratively self-contained.

Equipment

3. Each section carries a GPMG and a smoke discharger and may carry a shoulder-controlled anti-tank weapon. It is planned to provide each section with radar with a range of 5,000 metres and with radiac and infra-red equipment.

Communications

4. Each vehicle in the platoon will have two radio sets, connected to give re-broadcast facilities if required. The platoon can provide the following communications with this equipment:—

Either

(a) A platoon forward net and a separate rear link from platoon HQ on the battalion command net;

or

(b) Each vehicle in the platoon can work on the battalion command net;

or

(c) Any vehicle in the platoon can be used as a relay station should it be necessary to stretch the battalion command net.

5. In addition, the second set can be used to work to any rifle company in whose area the vehicle is moving.

Employment

6. The platoon will usually be deployed under the direct orders of the battalion commander. It must work in close collaboration with all other means of observation and reconnaissance within the battalion area. Whenever possible, therefore, the information obtained by the platoon should be collated by the normal battalion intelligence organization. Although armoured reconnaissance elements may often be operating with the battalion, it will be unusual for the reconnaissance platoon to be placed under their command. Co-ordination of effort will be arranged, where necessary, by the battalion commander.

The platoon commander

7. Besides commanding his platoon, the platoon commander is the Commanding Officer's adviser on all surveillance matters within the battalion. He may be made responsible for the co-ordination of the entire battalion reconnaissance effort. To do this, he must work in close collaboration with the battalion Intelligence Officer.

SECTION 18.—TACTICAL EMPLOYMENT—NUCLEAR

Defence

8. Sections should be employed as far forward as possible to take maximum advantage of their radar range, though not so far forward as to involve them in the battle on the obstacle line. Their detailed positioning depends largely on the line of sight for the radar sets. Care must be taken to ensure that OPs' arcs

interlock and to ensure that the surveillance layout has adequate depth.

9. Tasks may be:—

(a) To give early warning of the enemy's approach, strength and lines of advance.

(b) To screen gaps in the defence which are vulnerable to enemy penetration.

(c) To maintain general surveillance within the battalion area of influence.

Target acquisition

10. The main task will be target acquisition for nuclear weapons and anti-tank guided missiles. If the enemy should succeed in penetrating a position, the platoon must withdraw to new locations from which it can continue to maintain surveillance over the battalion area.

11. It may sometimes be necessary to group two sections together to overcome the problem of fatigue caused by intensive observation over a long period.

Deception

12. The platoon may be required to participate in radar or infra-red deception plans as ordered by higher formation or, alternatively, it may undertake local deception tasks ordered by the battalion commander.

Additional tasks

13. These may include assistance in post-strike analysis, route reconnaissance around radio-active areas, monitoring radio-active areas, and liaison duties.

Offence

14. Reconnaissance platoon vehicles are not armoured cars, nor should they be employed as such. Platoon tasks may include surveillance before and during offensive operations, watching the flanks, reconnaissance of routes, and assistance in establishing an observation line in the reorganization phase.

SECTION 19.—TACTICAL EMPLOYMENT—NON-NUCLEAR

General

15. Non-nuclear war may be more protracted than nuclear war, therefore the employment of the platoon sections in pairs is

mainly envisaged, except when the sections are deployed singly on observation tasks of limited duration.

Defence

16. Tasks include manning OPs, liaison duties, mobile patrols within the battalion area of responsibility, and deception as outlined in paragraph 12.

Withdrawal

17. Tasks include route reconnaissance, traffic control, provisions of re-broadcast stations and liaison duties.

Advance to contact

18. Tasks include surveillance of routes and flanks from high ground, route reconnaissaince and liaison duties.

Attack

19. Tasks include watching the flanks, reconnaissance of routes and establishing observation in gaps during reorganization.

Internal Security operations

20. Tasks include surveillance by day and night on roads, villages and areas of country where suspect movement is liable to occur. The platoons' powers of observation, communications and its technical resources should be fully exploited. The platoon can also be employed on general liaison duties and the provision of escorts.

CHAPTER VII

THE SIGNAL PLATOON

SECTION 20.—TASKS AND ORGANIZATION

Tasks

1. The tasks of the signal platoon are:—

(a) To provide signallers and/or drivers/operators to operate the battalion command net, the reconnaissance platoon net, and control and rover stations on the rifle company nets.

(b) To establish a signal centre at battalion HQ and a temporary signal centre elsewhere for short periods if required.

(c) To lay line communications as required by the Commanding Officer

(d) To give advice and assistance to rifle companies on signal training and maintenance of their signal equipment.

Organization

2. Every member of the platoon must be a fully trained signaller capable of carrying out any task required of the platoon. The platoon is, however, organized in sections, each with a definite role, for the following reasons:—

(a) Command

The signal officer commands the signal platoon and his signal NCOs are allotted to one or other of the two sections.

(b) Administration

This can be sub-divided as for command, thereby making administration of the platoon in the field as simple as possible.

(c) Battle procedure

The organization of the platoon into sections with definite tasks cuts the time needed to deploy the platoon.

(d) Maintenance

Each section has its own equipment and is responsible for its maintenance.

(e) Training

The training of reinforcements in war to replace casualties in particular sections is simplified and accelerated. The platoon is therefore organized into the following:—

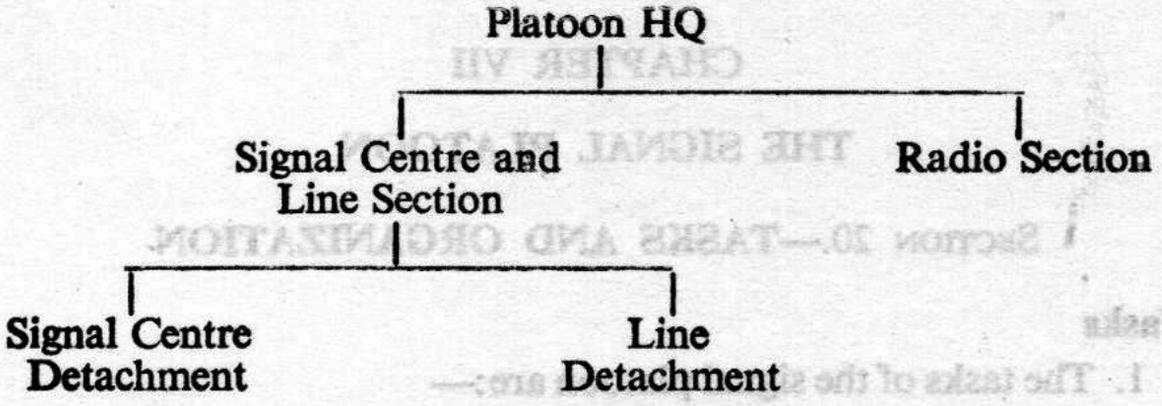


Fig. 13.—Outline organization of the signal platoon

Platoon HQ

3. Platoon HQ consists of:—

Captain:	Signal officer
Staff Sergeant:	Platoon sergeant; also in charge of the signal centre and line section.
Batman, Driver/operator	Drives the signal officers ¼-ton truck and ½-ton trailer.
2 signallers:	Storemen.
Driver/operator:	Drives 3-ton cargo and 1-ton trailer.

Signal officer

4. The duties of the signal officer are as follows:—

(a) He is the battalion commander's signal adviser.

(b) He commands the signal platoon and is responsible for its administration and maintenance.

(c) He plans and issues orders for all battalion communications, including the allocation of frequencies and channels.

(d) He is responsible for all signal training in the battalion.

(e) He arranges communications with supporting arms.

(f) He liaises with the brigade signal officer and sites and administers the Royal Signals troop supporting the battalion.

5. The signal officer is normally a member of the battalion R group and always of the battalion O group, so is often away from the platoon during the deployment of the battalion. It is, therefore, essential that his vehicle should not be used as a load carrier. His vehicle will contain two SR C42 so that he can provide rebroadcast facilities.

Platoon sergeant

6. His duties are:—

(a) Normal administrative duties of a platoon sergeant.

(b) Supervising the maintenance and replenishment of all stores on charge to the platoon.

(c) Command and co-ordination of the signal centre and line detachment.

(d) Cadre training.

Truck, 3-ton, GS and trailer, 1-ton

7. This vehicle driven by a driver/operator will normally travel in A echelon. Apart from certain stores listed below the vehicle will also carry the two storemen, one of whom operates the battery charger:—

Platoon bedding
Spare cable
Spare batteries
Spare radios
} A proportion of these are carried in F echelon, for immediate battle replenishment.

Battery charging equipment

Signal centre and line section

8. This consists of two detachments, the signal centre detachment and line detachment.

'a) Signal centre detachment: this contains sufficient personnel to form two exchange parties, each of:—
Corporal: Signal clerk and indoor lineman.
Signaller: Exchange operator.
Signaller: Local orderly.

(b) Line detachment:
1 Corporal
5 Signallers
1 Driver/operator with ¼-ton vehicle and ½-ton trailer.

9. The platoon sergeant is responsible to the signal officer for the co-ordination of the signal centre and line section. His duties here include:—

(a) The siting of the signal centre if not already done by the signal officer.

(b) Holding classified documents in non-static operations (SECRET and below).

(c) Briefing line parties, and laying and maintenance of all cable.

10. The signal clerk on duty is responsible for:—

(a) Setting up the signal centre.

(b) Supervision of all activities of the signal centre with particular emphasis on:—

(i) Accounting for classified documents held by the signal centre.

(ii) The accuracy and up-to-date state of the following records:—

Signal centre diary and clearance register
Signal centre diagram
Signal despatch service timetable
Net identification sign and address group extracts
Location statements.

(c) Briefing signal centre personnel in the defence plan in case of ground or air attack.

(d) Assisting in the setting up of the exchange area.

11. The detachment not on duty is available to lay line and give immediate assistance in the defence of battalion HQ. The two detachments allow a signal centre to be kept open continuously for long periods with proper reliefs. The War Establishment allows for three detachments.

12. The personnel of the line detachment allow up to three 2-man parties. Where necessary a vehicle party can be provided. When not laying cable the line detachments form part of battalion HQ defence. They will constantly be available for maintenance of line already laid. If no line is required the section or part of it might be in A echelon.

13. The line corporal's duties are to:—

(a) Command the line detachment.

(b) Supervise line laying, and maintenance of line and line equipment.

(c) Assist in laying line when necessary.

14. The following equipment may be carried in the ¼-ton vehicle and ½-ton trailer:—

(a) Signal centre equipment, signs, lamps.

(b) A limited amount of cable and cable laying equipment.

(c) Equipment sufficient to set up the exchange area.

The radio section

15. This section consists of:—

Radio sergeant
Driver/operator ¼-ton truck and ½-ton trailer

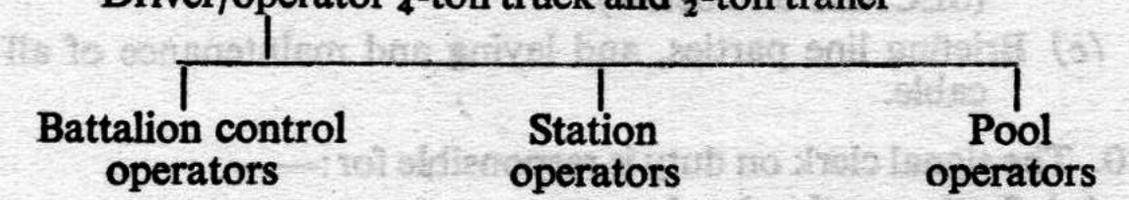


Fig. 14.—Outline organization of the radio section

The radio sergeant

16. The duties of the radio sergeant are:—

(a) The control and supervision of all radio operators in the signal platoon and supervision of training of company operators.

(b) To organize the replacement of faulty radios, batteries and the relief and replacement of operators when necessary.

(c) In conjunction with the signal clerk, the preparation and distribution of codes, radio diagrams, etc.

(d) The distribution of official time throughout the battalion (this should be obtained from brigade HQ daily).

(e) Ensuring that the command post is kept informed of the state of radio communications.

(f) Cadre training.

17. The uses of the radio sergeant's ¼-ton vehicle are:—

(a) Carriage of replacement radios or batteries.

(b) Carrying forward operators as replacements for battle casualties.

(c) Delivery of bulky packages or despatches.

(d) Carriage of one 300 watt charging set for charging of batteries of battalion HQ radios.

(e) In addition to personal kit, the following stores are carried on the truck:—

A proportion of reserve radio equipment

A proportion of spare batteries for each type of radio used by the battalion.

Battalion control station

18. One corporal driver/operator, one corporal signaller and one signaller are allotted to the control radio. This radio will be mounted in a 1-ton armoured truck fitted for radio when the battalion is mobile. The distribution of these signallers to vehicles will be laid down by the adjutant.

Sub-station operators

19. Station operators are responsible for operating the rest of the radios on the battalion command net and in the reconnaissance platoon. A possible distribution is as follows:—

(a) Each rifle company—one detachment of:—

1 Corporal	1 × C42/HF
1 Signaller	1 × A41
1 Driver/operator	

(b) Commanding Officer, second in command, each:—

1 Signaller	1 × C42/HF
1 Driver/operator	1 × A41

(c) OC HQ Company, A and B echelons, each:—

1 Driver/operator	1 × C42/HF
	1 × A41

(d) Reconnaissance platoon:—

1 Corporal driver/operator	8 × C42/6 × HF
4 drivers/operators	4 × B47
1 driver/operator (Pool or from A or B echelons)	

20. All radio operators are grouped together in the radio section for the following reasons:—

(a) To centralize training.

(b) To simplify reliefs and replacements.

(c) To ensure a high standard of maintenance.

21. To ensure good team work, the same signallers should always be detailed to the same stations. Unnecessary changes will only cause ill feeling and should be avoided.

22. Operators not allotted to stations will be available for any additional radios which may be required.

Company signal detachments

23 *(a)* The detachments shown in paragraph 19 above may normally be concentrated in the signal platoon during administration and training periods in camp: detachment commanders have the following responsibilities to their respective commanders:—

(i) Advice on all signal matters.

(ii) Training company signallers when no centralized cadre is being run.

(iii) Simple maintenance of all signal equipment including replenishment of batteries.

(iv) Battery charging.

(v) Issue of radio diagrams, frequencies, callsigns, collective calls, address groups, net identification signs, times for netting, Slidex, Griddle, etc.

(b) While on company detached training and operations they will obviously come under command of company/reconnaissance platoon commanders. Close overall supervision is still required over them by the signal officer and radio sergeant.

CHAPTER VIII

ENGINEER TASKS IN THE INFANTRY BATTALION

"Everyone had his sword girded by his side, and so builded."

Nehemiah IV, 18

SECTION 21.—INTRODUCTION

Responsibilities

1. Although an engineer field troop is affiliated to each Infantry battalion in a brigade group it is unikely that the troop will be in direct support of the battalion before battle is actually joined: the whole of the brigade field squadron is usually employed on brigade engineer tasks, particularly in defence. Once battle is joined there is little that sappers can do in the open in front of the FDLs and if there are no other brigade engineer tasks, the field troop should be free to join their affiliated battalions.

2. An Infantry battalion must therefore retain the ability to carry out its own domestic engineer reqnirements. Most battalion engineer tasks require much more manpower than is available in the assault pioneer platoon, particularly in defence. In principle, therefore, the rifle companies do the elementary work.

3. The battalion has an assault pioneer platoon of four small sections. This enables the Commanding Officer to affiliate a section to each rifle company but he must generally keep some sections for battalion tasks. Deployment to companies depends on his priorities.

SECITON 22.—RIFLE COMPANY ENGINEER TASKS

4. Before considering the organization, tasks and deployment of the assault pioneer platoon, commanders at all levels should know what engineer skills men of rifle companies must be able to carry out. This will enable the assault pioneer platoon to concentrate on more specialized tasks and on supervision.

Rifle company tasks in defence

5. *(a)* Constructing protective defences in front of company positions:—

(i) Protective minefields: anti-personnel, anti-tank and mixed.

(ii) Protective wire obstacles.

(iii) Other obstacles, eg, road blocks.

(b) Digging for individual and weapon protection, including use of explosive aids and manpack motor drills.

(c) Clearing fields of fire.

(d) Clearing routes for moves to alternative positions and likely counter-attack routes, including nuclear blow-down.

(e) Construction of helicopter landing grounds.

In withdrawal

6. As for defence, within the time available, for intermediate positions and demolition guard positions.

In attack and the advance

7. *(a)* Minefield breaching; Baby Viper techniques.

(b) Breaching wire obstacles and strong points with Bangalore torpedoes.

(c) Clearing obstacles and routes for move of F and A echelon transport, including nuclear blow-down.

(d) Detection and clearance of nuisance mines.

(e) Construction of helicopter landing grounds.

In river/water crossing operations

8. *(a)* As a bank group company:—

(i) Providing ferrymen for assault boats.

(ii) Providing a rifle platoon to assist in constructing Infantry assault rafts.

(b) As an assault company: assault boat drills, carrying and paddling.

(c) Use and handling of reconnaissance boats.

(d) Simple floatation improvisations.

Basic Infantry engineer skills

9. A list of skills required for these and other tactical tasks are given in Appendix D. The technical aspects of all tasks are given in the Field Engineering and Mine Warfare pamphlet series—Part I (All Arms).

Rifle company officers

10. With rifle companies becoming more dispersed, and perhaps operating independently at times, there may be occasions when the assault pioneer sections will live and operate with their affiliated companies. Assault pioneers may not be available and one officer and one senior NCO per rifle company should be specially trained in pioneer tasks.

Officer training

11. An all arms officer course (four weeks) which covers all the subjects mentioned, is run annually at the Royal School of Military Engineering, Chatham, Kent. A similar course is run for Infantry WOs and NCOs. Unit commanders should attach assault pioneers to a field squadron, through their formation HQ, for short and refresher courses. Such attachments provide excellent liaisons with affiliated field troops.

SECTION 23.—THE ASSAULT PIONEER PLATOON

Role in non-nuclear and nuclear war

12. Simple field engineer tactical tasks and helping rifle companies with their field engineer tactical tasks related to:—

(a) Maintenance of battalion mobility and manoeuvre.

(b) Impeding enemy mobility and manoeuvre in the battalion area.

(c) Battalion protective field defences.

(d) NBC duties and decontamination work.

Role in Internal Security operations

13. *(a)* Tasks, as above, applicable to the situation.

(b) Detection of mines, bombs, arms caches and terrorist hides, using electronic devices, and their removal or destruction.

Note on employment

14. Assault pioneers are tactical like those of a support platoon and have no artisan trade training. They should not be employed on administrative tasks other than water supply. The battalion's section of tradesmen pioneers works under the QM.

Organization

15. *(a) Officers:* the 2IC of HQ Company will be trained in these duties; an officer in each rifle company must also be trained. General control and supervision of training of the platoon is exercised by 2IC HQ Company.

(b) Platoon HQ: WOII, sergeant and driver/storeman (lance corporal) with a truck 3 ton GS cargo with winch and a 1-ton cargo trailer. Platoon HQ stores are mainly a reserve of tools for the assault pioneer sections and a few items, such as reconnaissance boats and 1st line explosive, not required by sections for everyday use. Radio, if required, is made available from battalion resources.

(c) *Assault pioneer sections:* four sections, each consisting of a corporal and three assault pioneers. The War Establishment Increment includes two more assault pioneers per section. Each section has its own basic set of tools carried in a section box. This organization enables sections to be grouped with rifle companies, if required.

(d) *Weapons:* personal arms only.

(e) *Engineer stores:* many assault pioneer platoon tasks involve the use of improvized materials or engineer stores (including wire) drawn from RE field park squadron/troop. River crossing equipment, boats and rafts are delivered by the RASC bridge company.

(f) *Mines and explosives* are normally drawn from ammunition points but are sometimes delivered direct to a unit by RASC transport, especially when several truck loads are needed.

Assault pioneer tasks

16. The engineer tasks which the assault pioneers should be expected to do are divided into three categories:—

(a) *Supervisory:* tasks which rifle companies do but if the standard of training is low, assault pioneer advice may be required. Tasks of this nature have already been mentioned in Section 22.

(b) *Section tasks:* those which the section can do on its own or in direct support of a rifle company.

(c) *Platoon tasks:*

(i) Those for which two or more sections should be concentrated under platoon HQ.

(ii) Those for which the concentrated platoon can carry out with additional labour assistance (civilian labour is suitable for some of these tasks).

Minelaying and booby trapping

17. *(a) Section tasks*

(i) Laying and recording anti-lift devices, in conjunction with mines.

(ii) Setting simple booby traps, using standard mechanisms.

(b) Platoon tasks

(i) Scattered laying of our mines;
(ii) Laying captured enemy mines: } with or without extra rifleman assistance.

(iii) Extensive booby trapping, using standard or improvised mechanisms.

Mine and booby trap detection and clearance

18. *(a) Sections tasks*

(i) Minefield reconnaissance.

(ii) Minefield hand breaching, setting out and clearing Infantry two-feet assault lanes.

(iii) Minefield basic breaching (two-yard lane), if reinforced by two riflemen.

(iv) Mine pulling and neutralization.

(v) Booby trap detection and clearance.

(b) Platoon task: breaching and marking a safe lane for vehicles through a minefield or mined built-up areas. The platoon must be re-inforced with up to four rifle sections if a quick breach is essential.

Demolition and explosives

19. *(a) Section tasks*

(i) Simple assault demolitions.

(ii) Battle simulation.

(b) Platoon tasks

(i) Cratering.

(ii) Simple hasty demolition of bridges.

(iii) Destruction of equipment.

River or water crossings

20. *(a) Section tasks*

(i) River reconnaissance.

(ii) Construction of an Infantry assault raft, with the aid of a rifle section.

(iii) Operation of a paddled Infantry assault raft, with the aid of a rifle section.

(iv) Operation of a motored Infantry assault raft, with the aid of two riflemen.

(v) Light floatation.

(vi) Preparation of one amphibious APC river bank exit (two if close together and work is simple).

(b) Platoon tasks

(i) Operation of Infantry assault rafts by captive ferrying techniques.

(ii) Improvised rafting and floatation.

Field engineering using building materials

21. *(a) Section tasks*

(i) Strengthening and defence of buildings.

(ii) Simple field engines using tackles, jacks, winches, anchorages, sheers and gins.

(iii) Construction and maintenance of temporary tracks, including use of trackway expedients;

(iv) Simple culverting using improvised materials;

(v) Pothole repairs to earth and macadam roads;

} with the aid of extra labour.

(b) Platoon tasks

(i) Construction of derricks and aerial ropeways.

(ii) Construction of simple improvised bridges.

(iii) Construction of earth roads including drains, with the aid of extra labour.

Miscellaneous tasks (sections or platoon, depending on scale)

22. *(a)* Battalion/company water point including simple pumping, water testing, filtration and sterilization.

(b) NBC duties and decontamination work.

(c) Fight as a small rifle platoon when necessary.

Assault pioneer skills

23. A list of engineer skills in which assault pioneers must be proficient is given in Appendix D. The technical details of these skills are given in the Field Engineering and Mine Warfare Pamphlet series—Part I (All Arms) and Part II (RE and Assault Pioneers only).

Individual training

24. Special courses are provided by:—

(a) The Royal School of Military Engineering: a five week Infantry Field Engineer course for WOs and NCOs.

(b) Brigade field squadrons usually run annual courses in the winter or spring:—

(i) Combat Engineer BII course (six to eight weeks), which is very suitable for assault pioneer NCOs.

(ii) Combat Engineer BIII refresher course (four to six weeks) which is very suitable for assault pioneers.

(c) *Brigade battalion assault pioneer courses:* run by the brigade field squadron as required, duration one to three weeks. The field squadron is also usually willing to provide instructors for a battalion, from its affiliated field troop, for a week or two during the individual training season.

Collective training

25. It is most important that battalion and company exercises include realistic field engineer tasks for their assault pioneers. A lot of their tasks should be done at night, as in war. Assault pioneers should also have their own exercises but these are often difficult to organize, especially as they have no full-time officer, but the 2IC at HQ Company and the assault pioneer WO should be able to arrange them. The brigade field squadron can often help with training stores and advice and help by the affiliated field troop commander. Assault pioneer platoons can sometimes be attached to the local field squadron troop for exercises which include assault pioneer type tasks.

CHAPTER IX

THE RIFLE COMPANY

SECTION 24.—ORGANIZATION

1. The outline organization of the rifle company is shown in Fig. 1.

Company HQ

2 This consists of:—

(a) Officers

(i) Company commander
(ii) Company second-in-command

(b) Other ranks

Company sergeant major
Company quartermaster sergeant
Clerk
Batman/orderly
Three drivers
Two privates for defence, armed with GPMG
Storeman

One of the above will also be company SR operator.

(c) Attached: there are no personnel permanently attached to rifle companies but RAMC, RAPC and ACC personnel are allotted as necessary.

Rifle platoons

3. Each rifle platoon consists of:—

(a) Platoon HQ

One officer
One sergeant
Two 2-inch mortar numbers
Two rocket launcher numbers
One radio operator
One runner

(b) Three sections

Support platoon

4. The organization and tactical employment of the support platoon is considered in Section 25.

General notes

5. *(a)* One driver in each company will be trained as an equipment repairer.

(b) One private in each company will be trained as shoemaker.

(c) Two privates in each company will be trained as stretcher bearers.

(d) Three privates in each support platoon will be trained as range-takers.

(e) Six privates will be selected from rifle companies to be trained as snipers in which capacity they will operate under the sniper and weapon training instructor.

SECTION 25.—THE SUPPORT PLATOON

Organization

6. The support platoon comprises:—

(a) One section of two medium mortars.

(b) One section of two heavy anti-tank guns.

7. The platoon is commanded by a subaltern. He has no platoon HQ and normally bases himself at company HQ. He is the company commander's adviser on all Infantry support weapons. He may also help in the processing of information at company HQ, especially during nuclear operations.

8. The mortar and anti-tank sections are each commanded by a sergeant.

Mobility

9. The two sections of the support platoon are completely mobile, being mounted either in ¼-ton trucks or APCs, according to the organization of the battalion.

10. When mounted in ¼-ton trucks both the mortar and anti-tank sections will be dismounted for action and the weapons will be fired from ground positions. The WOMBAT can be fired from the vehicle in emergencies. The good cross-country performance of the ¼-ton trucks enables the section to move rapidly from one position to another to carry out its allotted tasks.

11. When mounted in APCs the mortar section can fire its weapons from its vehicles but the anti-tank guns have to be dismounted and fired from the ground.

Command and control

12. The support platoon commander is a member of the company commander's R group. His section commanders normally

attend the company commander's O group for orders but when it is essential to effect early deployment, may receive their orders from the support platoon commander immediately after the reconnaissance of the R group.

13. The support platoon commander normally co-ordinates the siting and tasks of his support weapon sections.

14. The support platoon is organic to the rifle company: sections of mortars and anti-tank guns are normally deployed within their company position as required by the company commander.

15. In nuclear warfare, or whenever distances between rifle companies are great, it may not be possible for the support weapons of one rifle company to be used on any company front other than their own. Support platoon commanders must always try to co-ordinate the tasks of their sections with those of neighbouring sub-units, in accordance with the overall plan of the battalion commander.

16. In certain phases of war it may be both practical and necessary for a battalion commander to centralize or re-group the weapons of his four company support platoons. In such a situation he will always nominate one officer to command or co-ordinate any centralized sub-unit so created. This task will be given either to one of the support platoon commanders or, in the case of anti-tank co-ordination where tanks are involved, to a senior officer, eg, the 2IC. Similarly, if the mortars of more than one company are required to fire on one target by the link shoot method, the link shoot will be controlled by an officer nominated by the battalion commander.

Administration

17. The sections of the support platoon are equipped and organized so that each section of mortars and each anti-tank detachment can be self-contained in battle. The support platoon is supplied and administered under the arrangements of the company of which it is an integral part.

Communications

18. The support platoon commander has a radio set (SR A41) on the company forward control net.

19. The mortar section base-plate position is on the same company net. The base-plate position has a separate forward net (SR A41) to each of the two fire controllers.

20. The anti-tank section commander has no radio but each detachment has an A40 set on the rifle platoon commander's forward net.

SECTION 26.— TACTICAL DEPLOYMENT OF THE GPMG IN THE SUSTAINED FIRE ROLE

General

21. The gun, as its name implies, may be used in either the LMG role using the bipod support, or in the sustained fire role using a heavy barrel and mounted on a tripod. A heavy barrel may be matched to any gun without undue loss of fire effect.

22. In the sustained fire role, the gun has an effective range up to 1000 metres with tracer, and 1800 metres if the strike of shot can be seen. The gun will have a dial sight attachment in this role to give it the capability of firing by night, or by day in bad visibility onto previously registered targets. Normal fighting ranges will be between 550 and 1100 metres.

23. Three heavy barrels with tripods, dial sights and ancillary equipment are held at each rifle company HQ of an Infantry battalion not organized on an APC basis. This equipment is immediately available to a rifle company for sustained fire tasks.

24. In an Infantry battalion equipped with APCs, any GPMG mounted on an APC may be employed in the sustained fire role.

Main task

25. The main task of the GPMGs (SF) will be to provide the rifle company with accurate and sustained fire support at ranges beyond those which can be undertaken by guns in the LMG role.

Manning and siting

26. The SF equipment must be operated by rifle platoon personnel. The company commander has to weigh up the requirements for GPMG (SF) support when formulating his overall fire plan for any phase of war. The equipment may be allotted singly to platoons for platoon fire tasks or be deployed within the company as necessary on company fire tasks. The actual fire control of the guns must be undertaken by a rifle section commander or, in special cases, by an officer or senior NCO delegated by the company commander.

Attack

27. If an Infantry battalion is without the supporting fire of other arms, it may be necessary for a battalion commander to exercise some co-ordination by giving reserve companies the tasks of providing GPMG sustained supporting fire either onto an objective or to protect the flanks of an assault.

Defence

28. In defence, GPMGs (SF) will be sited to give maximum fire support to the company position. The actual allotment and siting of the guns depends on the priorities of tasks laid down by the company commander. Normal tasks are:—

(a) Covering likely avenues of enemy approach.

(b) Covering the front of the company area.

(c) Covering the flank of a company position.

(d) Firing DF tasks at night or in poor visibility.

29. Up to six in number can be pre-planned. In certain circumstances, particularly where distances make it practicable, the guns may be allotted a battalion task to cover the gap between companies or the fronts of adjacent companies. The co-ordination of these tasks calls for proper liaison between the company commanders concerned.

30. GPMGs (SF) must be manned by men from the rifle sections at all times. Clear orders must be given to the fire controllers as to their priorities in fire tasks during an enemy attack.

CHAPTER X

INFANTRY/TANK CO-OPERATION

"Whilst they fight separately, they are conquered collectively."
Tacitus, Agricola 12

SECTION 27.—INTRODUCTION

General

1. The co-operation of tanks and Infantry is a normal feature of any action in modern war. The principles which are dealt with in this chapter apply equally whether the Infantry are mounted in APCs or operating dismounted.

Allocation of tanks

2. Armoured regiments now form an integral part of the Infantry brigade group. The sub-allotment of tanks within the Infantry brigade group will vary, but it is usual to find an affiliation of one squadron to each of the three battalions.

Team work

3. To ensure success, the closest possible liaison between the tanks and the Infantry is essential, and this can be attained only if a high standard of team work and communications technique is developed. This in turn, must be founded on a tactical doctrine common to both tanks and Infantry. The more existence of this common doctrine is not sufficient. Although units which have trained together and know each other should, whenever possible, be grouped together for battle, situations are bound to occur in war when units which are strange to each other will have to fight together at very short notice. The common doctrine must, therefore, be practised in training to enable any Infantry unit to co-operate with any armoured unit with the minimum of preparation.

4. The aim of this chapter is to state the principle on which this co-operation of tanks and Infantry will be based. Further details will be given under the diffierent phases of war.

SECTION 28.—THE CHARACTERISTICS OF TANKS

General

5. The tank is an armoured fighting vehicle designed to carry fire power in those areas where it can be used most effectively to

win the battle. The main characteristics of the tank are its fire power, mobility, armour, flexibility and good communications. These characteristics make it suitable for co-operation with Infantry because:—

(a) The fire support which the tank can give the Infantry is quicker, more flexible and more intimate than any other form of supporting fire.

(b) The support can be at very close range.

(c) The tank's ability to destroy or neutralize those weapons that hold up the Infantry enables the latter to close with the enemy and destroy him.

Fire power

6. The armament of a tank consists of a primary weapon and secondary weapons:—

(a) *The primary weapon* is a high velocity gun mounted in the turret, with all round traverse, and capable of firing:—

(i) Armour-piercing shot, for use against enemy tanks, buildings and strong points.

(ii) High explosive shells for providing accurate direct or indirect fire against enemy troops, guns or motor vehicles in the open or behind light cover. Because of the great accuracy of the gun, this type of fire can be used with effect against pin-point targets such as enemy machine gun posts.

(iii) Canister shells for use at very short range against massed enemy Infantry. They can also be used for blasting a narrow path for Infantry through thick scrub.

(iv) Smoke, to prevent enemy observation of the movement and dispositions of our own troops.

(b) *The secondary weapons a*re:—

(i) A small calibre machine gun mounted alongside the main gun, also having an all round traverse and capable of a high and sustained rate of fire, for use against unarmoured enemy troops and for searching hedgerows and light cover.

(ii) A small calibre machine gun mounted on the commander's cupola for use at very close range against massed enemy Infantry and against low-flying aircraft.

(iii) Multi-barrelled smoke projectors mounted on either side of the turret, to provide quick local smoke protection for the tank.

7. The tank main armament and co-axially mounted machine gun are, in the main, direct fire weapons. However, the sighting and control gear is such that accurate fire on fixed lines at night is possible provided that the tanks can occupy night positions during the hours of daylight and register targets from these positions during the day.

Mobility

8. The cross-country performance of a tank is such that it can work with Infantry in most types of country. A tank is susceptible to the ground. Any Infantry/tank plan must ensure through previous reconnaissance and study of maps and air photographs that the ground is suitable and passable for tanks.

9. By using mobility combined with armoured protection, tanks can provide intimate close fire support, either against enemy tanks or Infantry, on the battlefield at the crucial time and place. Do not tie tanks down in static fire positions and so forfeit the advantages of their mobility.

Armour

10. The crew of a tank has all round immunity from small arms fire and HE, the armour of the tank also provides, to a varying degree, and especially frontal, protection against anti-tank weapons. A considerable measure of protection is also afforded against nuclear blast and heat effects. A high degree of protection against the residual effects of nuclear explosions, is also afforded by the tank. A tank can move across an area of fall-out with little ill-effect to the crew, provided that it remains closed down. In close country and at night, tanks will usually require the assistance of Infantry to protect them from enemy short-range Infantry anti-tank weapons.

SECTION 29.—LIMITATIONS OF TANKS

11. The size and complexity of modern tanks impose certain tactical and administrative limitations on their use. These limitations must always be borne in mind by the Infantry when planning any joint operations.

Tactical limitations

12. *(a) Sensitivity to ground:* large rivers, marshes, forests, high mountains and built-up areas restrict the mobility of tanks being exploited to the full. The surprise effect of using even small number of tanks in areas where tank going is nearly impossible may sometimes offset the amount of effort required to get tanks to these areas.

Tanks are vulnerable in close country, especially to short-range, hollow charge weapons. In this type of country tanks must have Infantry support.

(b) Ability to hold ground

(i) Tanks can hold ground by day in open country with good fields of fire, with the minimum of Infantry support.

(ii) In close country or by night, tanks cannot hold ground unless strongly supported by Infantry. The introduction of infra-red devices, built in to the tanks, will increase their night fighting capability.

(c) Restriction of vision: when on the move, and particularly when closed down, the vision of the crew of a tank is limited.

(d) Night operations: tanks can and will operate at night, if enough time is allowed for reconnaissance, but in darkness, fog or smoke, accurate shooting is not possible except on fixed lines. The introduction of night fighting aids will offset this to some extent, except under conditions of fog or smoke.

(e) Noise and concealment: tanks are noisy and difficult to conceal, especially from the air; they tend therefore to draw fire. This limitation must be taken into account in the selection of FUPs, axes of advance for tanks and Infantry and whether or not an element of surprise is required. The flash and smoke of the main tank armament is impossible to conceal so tanks must move. They are not ideal defensive weapons in a static role and should withdraw to an alternative fire position after an engagement is over.

Administrative limitations

13. Owing to the complexity of modern tanks, the following administrative limitations must always be considered when planning joint operations:—

(a) Fuel capacity: is limited and, except in exceptional circumstances, it will normally be necessary to re-fuel at least once every 24 hours.

(b) Ammunition: the amount of ammunition carried is limited. Tank fire power should not be employed against targets which can be dealt with by field artillery or mortars. It may be necessary in intensive operations to withdraw tanks to a rear rally to enable them to replenish with ammunition.

(c) Maintenance: at least two hours a day must be allotted for maintenance, re-fuelling and replenishment of ammunition; tanks may need more in intensive operations. It is difficult to carry out repairs or break tracks in silence or without lights of any kind if work has to be carried out at night.

(d) Crew fatigue: tank fighting, day after day, imposes severe mental and physical strain on crews, and about four days intensive operations is the maximum period for which crews can be expected to function efficiently without a break.

SECTION 30.—ORGANIZATION OF AN ARMOURED REGIMENT

Organization

14. The outline organization of the armoured regiment is shown in Fig. 16. The regiment consists of a regimental HQ, HQ Squadron and three tank squadrons.

Regimental HQ (RHQ)

15. *(a)* This contains the necessary personnel and vehicles for the command and control of the regiment.

(b) In battle, the officers of RHQ, may be grouped into teams to control various aspects of operations, to act as spare teams in case of casualties, and to provide officers on both forward and rear radio links as follows:—

Team A Commanding Officer,
Adjutant;
Team B 2IC,
Intelligence Officer/Signal Officer.

The exact composition of the teams varies in different regiments.

(c) Control is exercised either from a tank or from the alternative command vehicle.

HQ Squadron

16. This is the administrative centre of the regiment, and contains all the personnel and vehicles to carry out administrative tasks. HQ Squadron consists of the following troops:—

(a) Reconnaissance troop: this has 16 scout cars, and is commanded by a captain. It is normally deployed in patrols of not less than two cars. Some of the scout cars are used for inter-communication. The reconnaissance troop is under HQ Squadron for training and administration only. Its tasks include close reconnaissance and route finding.

(b) Administrative troop: this means those parts of the administrative echelons which are not included in the administrative troops of the individual tank squadrons. The administrative echelon of the regiment is divided into three:—

(i) *A1 echelon;* this echelon contains the vehicles required for immediate battle replenishment, mainly POL and ammunition. It is controlled by the regimental commander and moves close behind the fighting troops.

(ii) *A2 echelon:* this echelon contains the remaining vehicles required for maintaining the regiment and is used either to top up A1 echelon or to carry out complete replenishment during the hours of darkness. It will usually be under brigade control and will be located in the brigade administrative area. The LAD will usually be located with A2 echelon.

(iii) *B echelon:* this echelon contains any vehicles which are not needed during the battle. It will usually be under divisional control.

(c) LAD REME: the LAD is attached to the regiment for the necessary first line repair of all vehicles. Within the regiment, the HQ of the LAD and certain specialist groups remain under centralized control and are administered by HQ Squadron. Three squadron sections are detached to the three tank squadrons with their appropriate vehicles (ARV, fitters APC and technical stores truck).

(d) Royal Signal troop: attached to maintain and repair radio equipment, to charge batteries, and to man the regimental G and logistic rear link sets. One radio technician is detached to each tank squadron and travels with the squadron section REME.

Tank squadron

17. *(a)* Each squadron consists of a squadron HQ, three medium troops, one heavy gun tank troop and an administrative troop.

(b) Squadron HQ

(i) Personalities: Squadron leader—major;
Second-in-command—captain;
Second captain—captain
Liaison officer—subaltern.

(ii) Vehicles:— Three main battle tanks (control);
One scout car;
One ¼-ton 4 × 4
One tank dozer.

(c) Troops

(i) Each troop consists of three main battle tanks, commanded as follows:—

1st tank —troop leader (subaltern);
2nd tank— troop sergeant;
3rd tank — troop corporal.

(ii) Three troops are equipped with main battle tanks.

(iii) One troop is at present equipped with heavy gun tanks.

(iv) Eventually all troops will be equipped with one type of tank, the main battle tank.

(v) Each crew consists of four men:—

Crew commander;
Driver;
Gunner;
Loader/operator.

(d) Administrative troop

(i) There are sufficient vehicles for load carrying, specialist vehicles and attached personnel to make a squadron administratively self-supporting for limited periods.

(ii) The administrative troop is broken down into A1 and A2 echelon packets for grouping. If the squadron is operating with the regiment, A1 echelon and A2 echelon packets will be grouped with their appropriate echelon.

(iii) If the squadron is temporarily operating independently of the regiment, the A1 and A2 echelon packets will be moving with appropriate echelons of the other units or formations involved.

(iv) REME section attached: attached to each tank squadron during operations are:—

One ARV;
One fitters' APC;
One technical stores truck.

Specialized equipment

18. Details of the specialized equipment issued to an armoured regiment are given below:—

(a) ARV; a main battle tank with an armoured superstructure instead of a turret. It contains a powerful winch and is manned by REME personnel from the LAD. Scale: four per regiment.

(b) Tank dozer: A normal main battle tank fitted with a dozer blade; used to give increased mobility to the regiment by overcoming minor obstacles such as craters and ditches. Scale: one per squadron.

(c) Bridge layer: a main battle tank chassis carrying a bridge. with a capacity of 80 tons. Scale: one per regiment.

SECTION 31.—CARRIAGE OF INFANTRY ON TANKS

19. In the past, and especially during mobile operations, there have been many occasions when fatigue has been lessened and movement speeded up by carrying Infantrymen on tanks when no other means of transport has been available. When APCs are available Infantry should not be carried on fighting tanks if opposition is expected. On the other hand, if just a move to an assembly area is involved, and APCs are not available, there is a saving in road space if Infantry travel on the tanks with which they will later be fighting. Such Infantry are also readily available to deal with small parties of enemy which might otherwise delay the advance.

20. When Infantry are to be carried on tanks, a definite organization and practice in mounting and dismounting is required. It can be taken as a general rule that one squadron of tanks can carry one company of Infantry with their personal weapons. The Infantry must have a drill for mounting the tank, for dismounting and for quick assembly. Riding on the outside of a tank, especially across rough country, calls for practice.

21. Unless it is reasonably certain that opposition will not be encountered, the leading tanks must not carry Infantry because:—

(a) A tank cannot operate in its proper function or employ its weapons when it is carrying Infantry.

(b) Delay and confusion will arise if dismounting is carried out after the enemy has opened fire on the tanks. Casualties are likely to occur among the Infantry riding on the leading tanks and the safety of the remaining Infantry will be in jeopardy.

(c) Tanks inevitably attract fire and when this happens, riding on them is perilous.

22. The drill for loading, mounting and dismounting will vary with the formation adopted by the tank squadron and the Infantry company. Points to be considered include:—

(a) Control: organization should be on a company basis and company commanders, having been briefed by the Commanding Officer must exercise control by means of the company radio net on which the "C" set of the

tanks will be working. Control by platoon commanders over their sections must be visual, although platoon commanders should be able to speak to individual tanks by using their SRs A41.

(b) *Alertness:* do not let men become sleepy, particularly in a move. Exhaust fumes cause drowsiness and there is a danger of men falling off the tanks. **Do not let men hang their legs over the sides of the tanks: they may easily get them crushed.**

(c) *Holding ropes:* when rings are welded to the turrets of tanks, ropes can be passed through these rings to help men to keep their positions when being carried over rough going. A continuous rope round the turret is dangerous as any sudden strain may trap the hands of the men.

(d) *Practice:* every individual man must know his position on the tank and have a trial run before an operation takes place. This is particularly important if a night move is to be carried out.

(e) *Dismounting drill:* a drill for dismounting and rapidly going into action to deal with isolated enemy posts must be practised. The action to be taken in the event of air attack must be known by all.

SECTION 32.—TERMINOLOGY

Fire

23. Tanks can bring fire to bear in three ways:—

(a) *Direct fire:* when the tank gunner sees the target and fires using his periscopic telescope: the most effective method of firing.

(b) *Semi-indirect fire:* when only the commander can see the target; slower than direct fire and less accurate.

(c) *Indirect fire:* the use of tanks in the artillery role: this method is not very often used; and tank FOO is needed.

Hull-down position

24. Tank is said to be hull-down to its target when only the turret is exposed to view from that target. It is the normal fire position for a tank from which the gunner fires direct. The term is relative to one particular target at any one time.

Turret-down position

25. A tank is said to be a turret-down when it is completely concealed from its target except for the tank commander's head.

In its preliminary fire position, it allows the commander to observe his target, and therefore to fire by semi-indirect methods, or to move forward for direct fire from a hull-down position.

Forward rally

26. An area under cover in the vicinity of the objective to which tanks go when released from dominating the objective, and from which they are immediately available to return to fire positions or to support counter-attacks.

Rear rally

27. An area to which tanks go when released by the local commander from the forward rally and in which full replenishment and maintenance take place.

Tank leaguer

28. An area where tanks lie up, probably only for the night, and which is in close proximity to the enemy: often the same place as the rear rally. Usually it is in the open and tanks adopt a geometric pattern for protection, either a close or open leaguer.

Tank harbour

29. An area where a tank unit or sub-unit lies up for any length of time for a refit, maintenance and reorganization. It is usually well behind our own FDLs and related to available cover with concealment as the primary requirement.

Tank light

30. Light which allows aimed fire by tank gunners: in Europe, normally half an hour after first light until half an hour before last light.

Tank country

31. There is only one type of country which is not tank country and that is ground over which it is physically impossible to move tanks even with engineer assistance. The best type of country for manoeuvre of tank units and formations is one which affords means of obtaining cover from long-range anti-tank guns and at the same time denies the enemy cover from which to use his short-range anti-tank weapons to stalk or ambush tanks. A typical example is the rolling downland of Salisbury Plain. But close and efficient co-operation with Infantry enables tanks to move and fight over any country, close, mountainous or built-up.

SECTION 33.—INTERCOMMUNICATION

General

32. The effectiveness of any operation involving a combination of Infantry and tanks largely depends on the degree of liaison existing at all levels between the two arms. This liaison is achieved through:—

(a) Combined training.
(b) Joint reconnaissances.
(c) Joint O groups.
(d) Joint battle drills.
(e) Intercommunication.

33. Intercommunication is only one of the contributory factors to effective teamwork and its value is dependent upon the practice of all the other means of achieving liaison.

34. Intercommunication involves the use of any or all of the following:—

(a) Direct contact and visual aids.
(b) Telephone.
(c) Radio.
(d) Liaison officers, DRs and runners.

Direct contact and visual aids

35. Since Infantry and tanks operate in close proximity, co-operating commanders at all levels may be able to speak directly with each other. This is the most satisfactory form of inter-communication, the least likely to lead to misunderstanding, and the one which best safeguards security. It should therefore be used whenever possible.

36. To help Infantry to identify each co-operating tank when in visual contact, every tank displays its own fixed callsign and squadron tactical sign in a prominent position. Squadron tactical signs, which are also displayed on B vehicles, are as follows:—

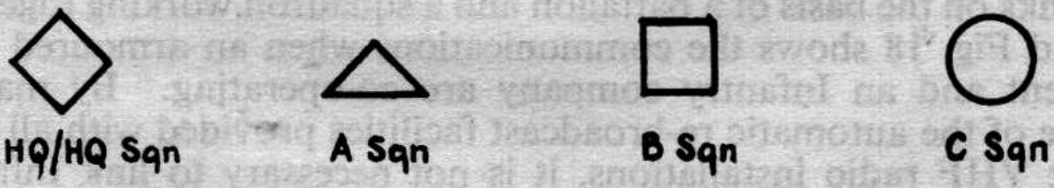


Fig. 15.—Squadron tactical signs in the armoured regiment.

37. The fixed callsigns for armoured regiments are given in Signal Training (All Arms) Pamphlet No. 7, Appendix E Table 1A.

38. It is more difficult for tanks to identify their co-operating Infantry but it may be possible to arrange for visual identification in the form of coloured smoke or Verey lights. This form of identification may also be useful during radio silence or interdiction for ordering some particular battle drill phase to be put into operation, or for reporting the completion of such a phase.

The tank telephone

39. If direct contact is not possible, Infantry may speak to individual tank commanders using the telephone mounted at the rear of each tank hull. The handset is attached to a spring-loaded extending connector, and the pressel switch must be firmly pressed while speaking. The attention of the tank crew is attracted by means of a buzzer operated from inside the telephone housing. If the commander of the tank is busy, the call can be taken by either the signaller/leader or the gunner. The telephone must be replaced in its housing after use.

Field telephone systems

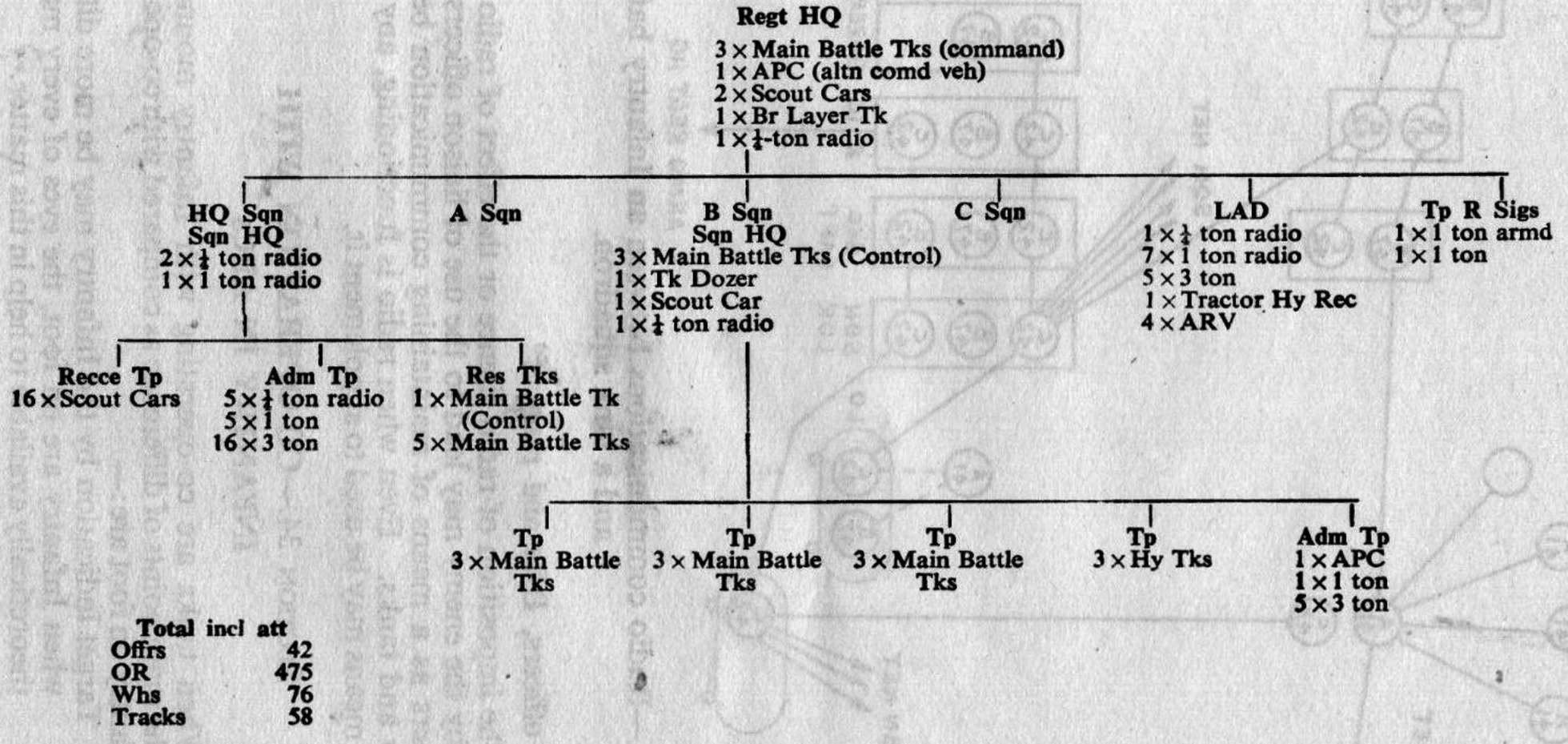
40. Although field telephone systems are impracticable for units engaged in fluid operations, they should be used as a means of inter-communication between Infantry and armoured units under static conditions whenever possible. Every armoured regiment holds one field exchange with its associated scales of field telephone and cable.

Radio

41. All armoured regiments are fully equipped with VHF radio sets. Besides their main, or "A" sets (at present the SR C 42), all armoured vehicles are fitted with a "C" set (currently the SR B 47) which operates over the same frequency bands as the Infantry manpack sets, and which is intended primarily for communication with co-operating Infantry.

42. Fig. 17 shows the communications between Infantry and tanks on the basis of a battalion and a squadron working together, and Fig. 18 shows the communications when an armoured regiment and an Infantry company are co-operating. By making use of the automatic re-broadcast facilities provided with all two-set VHF radio installations, it is not necessary to link Infantry and tanks on one permanent net. Instead, each works on its own, being linked only for short periods whenever the situation so demands The temporary re-broadcast link is normally achieved by means of the two-set installation in the scout car of the liaison officer attached from the tanks to the Infantry.

THE ARMOURED REGIMENT



Total incl att	
Offrs	42
OR	475
Whs	76
Tracks	58

Fig. 16

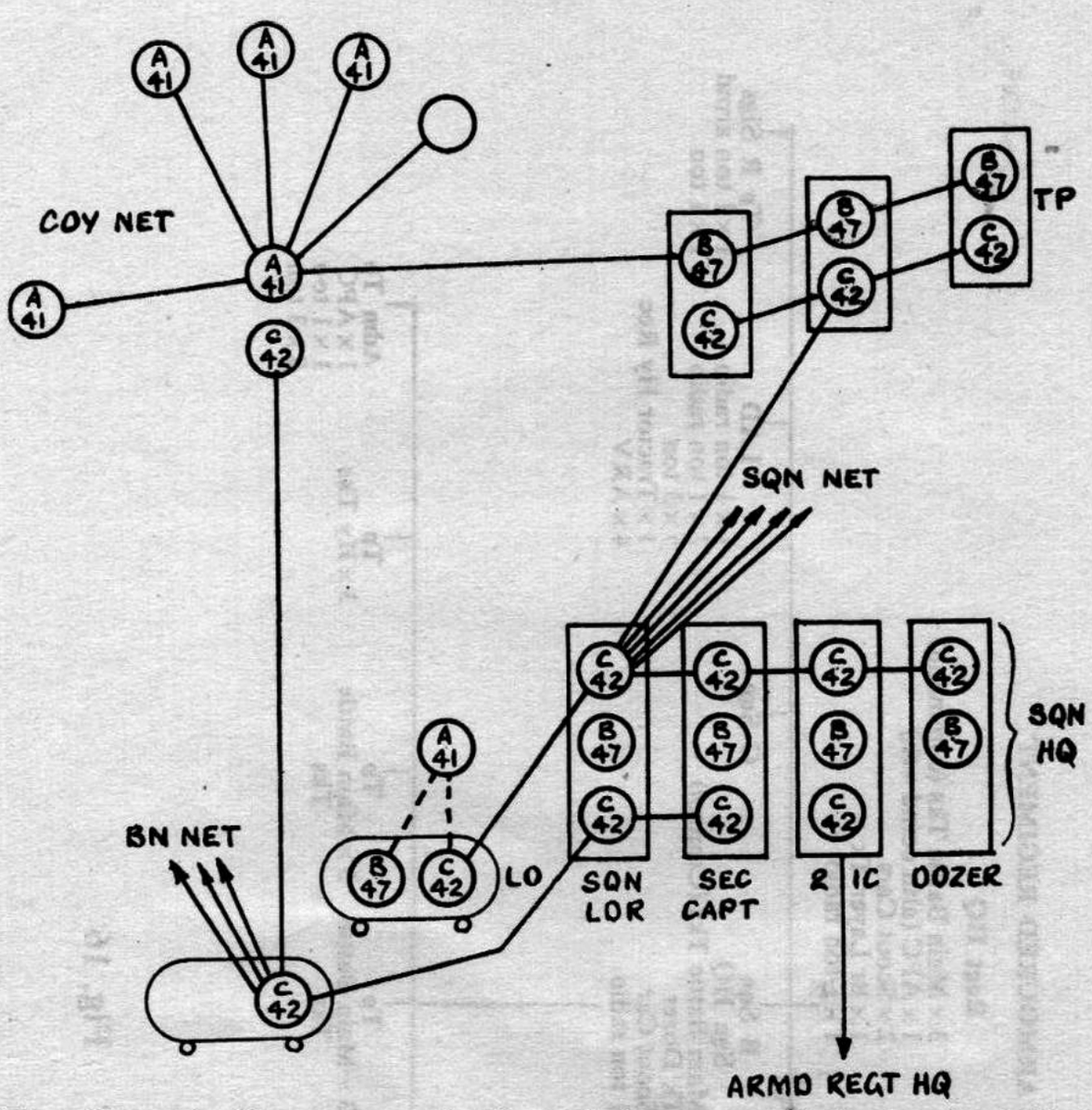


FIG. 17.—Radio communications between an Infantry battalion and a tank squadron.

Liaison officers, DRs and runners

43. The imposition of radio silence or the effect of radio interdiction by the enemy may lead to the use of liaison officers, DRs or runners as a means of maintaining communication between Infantry and tanks. Even when radio is functioning, any or all of these means may be used to supplement it.

SECTION 34.—CO-OPERATION WITH INFANTRY IN APCs

44. When tanks are co-operating with Infantry mounted in APCs, the main points of difference as compared with co-operation with Infantry on foot are:—

(a) Target indication by the Infantry may be more difficult: when Infantry are on foot, the eyes of every man are theoretically available to help in this matter.

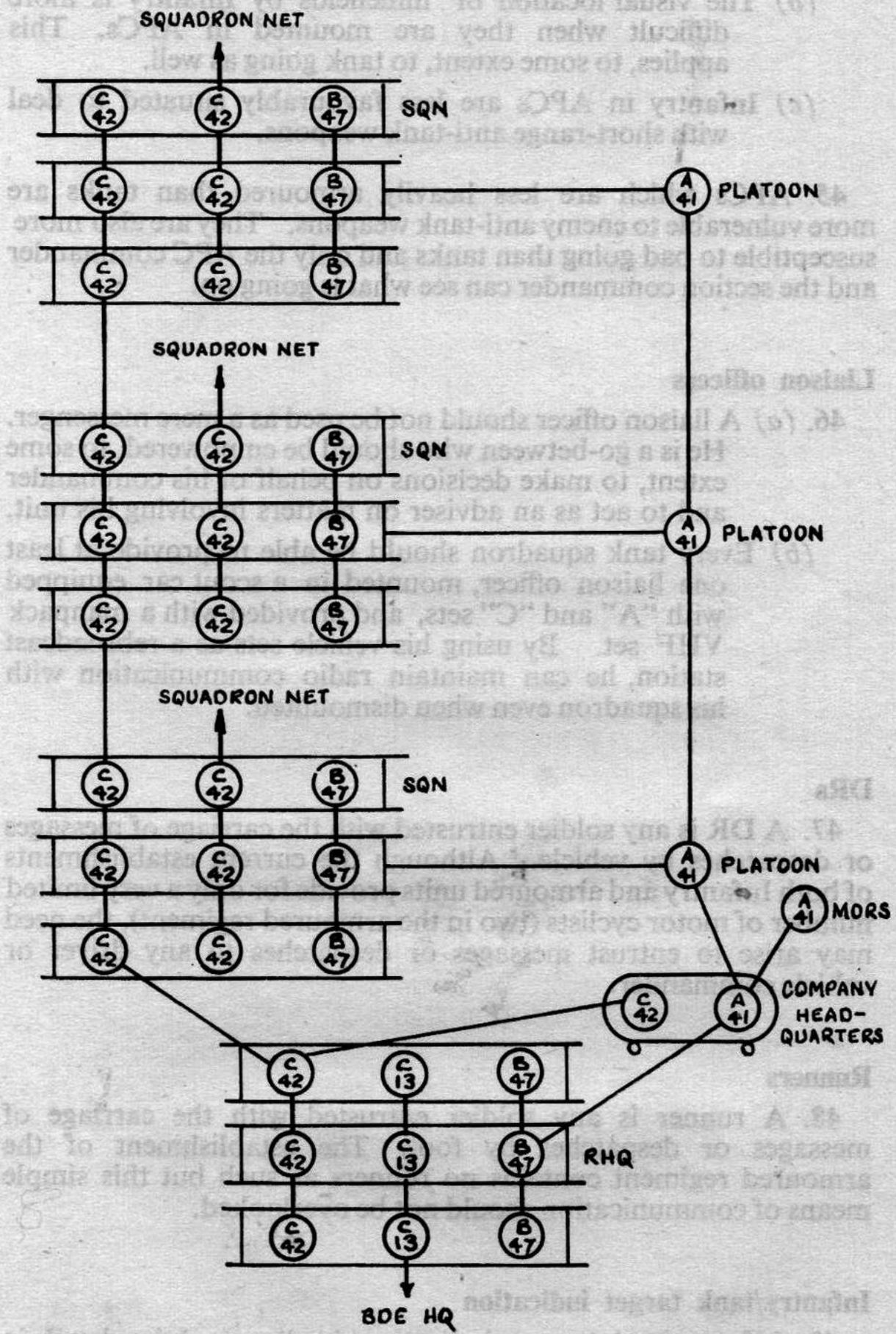


FIG. 18.—Radio communications between an Infantry rifle company and an armoured regiment.

(b) The visual location of minefields by Infantry is more difficult when they are mounted in APCs. This applies, to some extent, to tank going as well.

(c) Infantry in APCs are less favourably situated to deal with short-range anti-tank weapons.

45. APCs which are less heavily armoured than tanks are more vulnerable to enemy anti-tank weapons. They are also more susceptible to bad going than tanks and only the APC commander and the section commander can see what is going on.

Liaison officers

46. *(a)* A liaison officer should not be used as a mere messenger. He is a go-between who should be empowered, to some extent, to make decisions on behalf of his commander and to act as an adviser on matters involving his unit.

(b) Every tank squadron should be able to provide at least one liaison officer, mounted in a scout car equipped with "A" and "C" sets, and provided with a manpack VHF set. By using his vehicle sets as a rebroadcast station, he can maintain radio communication with his squadron even when dismounted.

DRs

47. A DR is any soldier entrusted with the carriage of messages or despatches by vehicle. Although the current establishments of both Infantry and armoured units provide for only a very limited number of motor cyclists (two in the armoured regiment), the need may arise to entrust messages or despatches to any driver or vehicle commander.

Runners

48. A runner is any soldier entrusted with the carriage of messages or despatches by foot. The establishment of the armoured regiment contains no runners as such but this simple means of communication should not be overlooked.

Infantry/tank target indication

49. Infantry/tank target indication is discussed in detail in Infantry Training Vol. IV, The Infantry Platoon in Battle, 1960 (WO Code No 9624) and Signal Training (All Arms) Pamphlet No 7, Voice Procedure, 1962, Section 38 (WO Code No 9735).

SECTION 35.—ANTI-TANK GUIDED WEAPONS

Introduction

50. The RAC and Infantry are now being equipped with anti-tank guided weapons (GW) to supplement existing weapons in the armoured reconnaissance regiment and in the Infantry battalion. GW in service are:—

(a) Malkara: the weapon of the Airportable GW Squadron RAC which is part of the Strategic Reserve.

(b) Vigilant: mounted on some of the scout cars of the armoured reconnaissance regiment and being introduced into the support platoons of some Infantry battalions on an experimental basis. The warhead is high explosive/anti-tank.

Control of GW

51. Both weapons in service are controlled after launching and directed on to the target by impulses transmitted through a wire paid out from the missile in flight. Control by this wire makes them immune from enemy radio jamming. The controller may direct the missile either from its actual launching position or by remote control from some distance away (up to ~~70~~ 60 or 80 metres, depending on the weapon).

Time of flight

52. The time of flight of a GW is much slower than that of a projectile fired from a gun: 12½ seconds at 1375 metres in the case of Vigilant; 28 seconds to 4000 metres for Malkara. This means that at long ranges targets must remain visible throughout the flight time of the missile. It also calls for uninterrupted concentration on the part of the controller for lengthy periods: up to nearly half a minute for Malkara. This may not be easy under battle conditions.

Range

53. The introduction of GW greatly ~~improved~~ improves the anti-tank capability of both the armoured reconnaissance regiment and the Infantry battalion because tanks can now be destroyed at ranges well exceeding those at which they can now be engaged with anti-tank guns. It also means that effective anti-tank weapons can now be dropped by parachute or air-landed in support of the Strategic Reserve. The lethality and effectiveness of the GW is unaffected by range though the difficulties of observation and identification of targets at long ranges should not be underestimated, nor should the possibility of the target disappearing

from view because of the length of the flight time be overlooked. A further disadvantage is that all GW have a minimum range at which targets can be engaged because after launching there is an interval of time before the missile can be brought under the controller's direction. Minimum ranges are 450 metres for Malkara and 275 metres for Vigilant. When remote control is used these minimum ranges increase.

Rate of fire

54. A controller can deal with only one missile at a time and in view of the slow flight of the GW this weapon will never be capable of the high rate of fire of the gun. The rate of fire of Malkara is also restricted by the time taken to replace missiles on the launching arms after firing. This takes up to two minutes for two missiles with existing equipment on the Hornet.

Vulnerability

55. The missile is almost invulnerable to outside interference whilst in flight. It is vulnerable on the launcher to small arms fire and shell splinters.

Use in darkness, mist and smoke

56. Generally if a target cannot be seen by the controller it cannot be engaged. Some night firing capability may possibly result from improved infra-red devices but in poor visibility caused by darkness, fog, mist or smoke, GW are unlikely to be used.

Principles of siting

57. GW should be sited:—

(a) Where the best use can be made of their range.

(b) As part of an integrated anti-tank defence plan.

(c) Where cover from enemy view is available.

(d) Where alternative positions can be found.

(e) Where they can be given local protection as necessary.

(f) Where, in the case of Malkara, quick re-supply is feasible because only a limited number of missiles is carried in the Hornet.

58. The boost flash from Malkara at the time of launching is conspicuous and the vehicle with its raised launching arms is easily detected. It is usual to position the launcher behind a crest where it is protected from observation and direct fire and to launch and direct the missile by remote control. The Hornet is not nor should it be employed as an armoured fighting vehicle.

59. The size and compactness of Vigilant make it easy to conceal and move. It can be sited where it would be impracticable to position a tank or anti-tank gun. It can accompany forward troops and be easily moved from one position to another. It is well suited for establishing anti-tank defence in the early stages of a river-crossing operation. It need not be sited in defilade because there is no tell-tale flash at the time of launching and it will always be difficult for the enemy to locate the launcher box. One controller can handle a battery of six missiles to cover a given arc, the missiles being connected to one sight control by means of a selector box. Vigilant can be fired from dead ground if there is sufficient crest clearance. The launch angle is 20 degrees and the missile flies about 15-20 feet above the ground.

Operational information

60. GW have a greater range than anti-tank guns and it is the responsibility of all troops of a force to provide them with the earliest possible information about the movements of enemy tanks and armoured vehicles. This makes it necessary to look out farther and deeper than before.

GW in relation to other anti-tank weapons

61. It is stressed that anti-tank GW are complementary to tanks and anti-tank guns. Advantages and disadvantages may be summarized as:—

(a) Advantages

(i) Lethality unaffected by range.

(ii) Greater effective range.

(iii) Accuracy does not suffer with range.

(b) Disadvantages

(i) Fleeting targets cannot be engaged because of long flight time.

(ii) Targets cannot be engaged at close range.

(iii) The slower rate of fire of GW which puts them at a disadvantage in face of large numbers of attacking tanks.

62. The guns of tanks themselves and anti-tank guns on the ground will still be needed to destroy enemy tanks at close range and those which GW cannot engage effectively.

CHAPTER XI

CO-OPERATION OF INFANTRY AND ARTILLERY

"And swich a blisse is ther bitwix hem two"—Chaucer—Tale of the Man of Lawe

SECTION 36.—AFFILIATIONS

Artillery commanders

1. Artillery commanders are provided at each level from army group to battalion. It is a principle that a commander should have to deal with only one artillery commander on all artillery matters. Down to and including brigade group level, artillery commanders are responsible to the formation commander but below brigade group, artillery commanders are responsible to their superior artillery commander.

2. The battery commander is the artillery commander at battalion level and his duties are:—

(a) To advise the battalion commander on all artillery matters.

(b) To control and produce fire plan orders for the fire of all artillery supporting the battalion.

(c) To exercise command over any artillery resources placed at his disposal by a superior artillery commander.

Artillery in the brigade group

3. The divisional artillery includes one close support regiment for each brigade group. One close support battery will normally be affiliated to each battalion. In nuclear war, Infantry brigade groups may expect the allotment of an 8-inch howitzer battery in direct support, although releasing authority will be retained at divisional or higher level. Additional artillery such as LAA and the SP medium regiment from an armoured brigade may be allotted for specific operations and it is usual for the brigade group to have the support of certain locating sub-units.

Chain of command

4. Artillery commanders are provided for formations and units as follows:—

Army Group	—	MGRA
Corps	—	CCRA
Division	—	CRA
Brigade Group	—	Commander of a close support regiment
Battalion	—	Close support battery commander

SECTION 37.—CONTROL OF ARTILLERY

General

5. Control in the artillery sense implies control of artillery fire, whereas command relates to the physical movement of the guns.

Allotment of artillery

6. Artillery may be allotted:—

(a) In direct support.

(b) In support.

(c) At priority call.

7. These different degrees of allotment indicate to the commander the degree of certainty with which requests for artillery support will be met.

In direct support

8. A battalion will usually have its affiliated close support battery in direct support. This means that:—

(a) It has guaranteed fire support from the fire of these guns.

(b) The artillery will provide the necessary liaison, observation and communications.

9. An artillery unit can only be placed in direct support of one formation or unit.

In support

10. The fire of artillery in support is put at the disposal of a formation or unit, but the artillery will not normally provide artillery advisers or communications for the supported unit. Control is exercised through the artillery unit, in direct support, through existing artillery communications.

11. An artillery unit may be allotted in support of more than one unit, and the decision as to which unit has priority must either be laid down in orders by the HQ concerned, or decided by that HQ when requests for fire are made.

12. In fire planning for an attack, an artillery unit may be allotted in support of a single unit carrying out the attack; in this case that unit will have guaranteed rights on the fire of the artillery unit for the duration of the attack.

At priority call

13. Artillery placed in support of formations or units is frequently also at priority call to other formations or units for some tasks; such tasks might be defensive fire or counter-bombardment.

When this qualification is applied, support from this artillery can only be guaranteed to the formation or unit having the artillery at priority call.

14. Artillery can only be allotted at priority call to one formation or unit and cannot be allotted in direct support to one unit and at priority call to another at the same time.

15. Artillery units at priority call do not normally provide artillery advisers or communications.

Nuclear weapons

16. In allotting the fire of nuclear units, the same principles will apply with the following exceptions:—

(a) OPs will not be provided.

(b) Although an allotment of nuclear weapons may be made to divisions or possibly brigades, the authority to fire them will invariably be retained at corps HQ.

SECTION 38.— TYPES OF ARTILLERY FIRE

Nuclear fire

17. The effects of a nuclear explosion consist of intense heat, blast and radiation. A nuclear explosion may be expected to cause destruction and demoralization over a large area, the size of which will depend mainly on the yield of the weapon, height of burst and, to a lesser extent, the weather and ground. Radiation has both immediate and residual effects. The latter are caused by fall-out from ground bursts or by induced radiation in the ground near GZ, in the case of certain types of airburst. The visible portion of the heat radiation may cause temporary blindness (dazzle) and in exceptional cases, partial permanent blindness (blind spots on the retina of the eye).

Methods of applying nuclear fire

18. Nuclear weapons may be exploded to give:—

(a) High airburst.

(b) Low airburst.

(c) Surface burst.

High airburst

19. This method is most effective against troops in forests and towns, and in open slit trenches without a thermal screen. Induced radiation, if any, is negligible. Little damage is caused to tanks, guns and similar equipment.

Low airburst

20. This produces the maximum immediate damage to most tactical targets particularly tanks, artillery and troops dug in with thermal screens. It should not produce a crater or fall-out but will cause induced radiation.

Surface burst

21. This will have roughly the same effects against equipment and troops under cover as a low airburst. The radius of casualties to troops in the open will be considerably reduced. A highly radio-active crater will be formed and radio-active fall-out will take place down wind of the GZ over large areas, which may be dangerous to troops for a considerable period. Ground shock will cause damage to buildings and underground installations.

Methods of applying non-nuclear fire

22. **Simple concentration:** the engagement of an area target by any number of guns. It is defined by the grid reference of the centre point of the area; the fire of a close support regiment will normally cover an area of about 250 × 250 metres.

23. This is the quickest, and if the enemy positions are known, the most effective form of support.

24. **Linear concentration:** when the shape of the ground so demands, fire can be brought down spaced over a line up to 500 metres in length. The target is defined by giving the grid reference of the centre point and the bearing of the line on which the shells are to fall and the length of the target.

25. Linear concentrations should only be employed when absolutely necessary as they take longer to arrange and are less flexible to adjust than simple concentrations and they produce a lower density of fire.

26. **Barrage:** a moving belt of fire providing a screen behind which the attacking troops advance. It is suitable for use when the information about enemy defences is poor, as some fire should cover the whole frontage and depth of the attack. It has the advantage of helping the attacking troops to maintain direction and the planned rate of advance. It is, however, very uneconomical in guns and ammunition and for this reason barrages will seldom be used.

27. **Illumination:** flare or star shell may be used. As a guide, the 105 mm star shell will brightly illuminate an area about 400 × 400 metres.

28. Smoke screen. This is used:—

(a) To blind enemy observation and so prevent observed fire by his artillery and aimed fire by his small arms and anti-tank weapons.

(b) To screen the movement of our own troops.

(c) For deception.

29. An important factor is the limited amount of smoke carried in the first line ammunition of the close support regiment; additional ammunition must be obtained in good time if a smoke screen of any size or duration is planned.

30. The effectiveness of smoke depends mainly on the weather and in case it should be completely ineffective, an alternative HE task must always be arranged.

31. Coloured smoke is also available for such purposes as indicating targets to aircraft, for bomb lines, or marking stages in a fire plan.

SECTION 39.—TYPES OF ARTILLERY SUPPORT

32. The following types of fire may be provided by artillery:—

(a) In offence:—

(i) Preparatory bombardment.
(ii) Covering fire.
(iii) Defensive fire, to cover reorganization on the objective.

(b) In defence:—

(i) Defensive fire.
(ii) Containment and counter-stroke nuclear tasks.
(iii) Covering fire to support counter-attack.

(c) In offence or defence:—

(i) Interdiction.
(ii) Harassing fire.
(iii) Counter-bombardment.

Preparatory bombardment

33. This is fired before an attack, with the object of breaking the enemy's resistence. It may be carried out by nuclear weapons, as the basis of the attack, and will be the best method of demoralizing and damaging the enemy. Without nuclear weapons, a long preparatory bombardment will not be justified or possible, as a very heavy weight of ammunition is required to gain effective demoralization, and surprise is liable to be prejudiced. A brief but intense programme shortly before the attack may give good results.

Covering fire

34. The aim is to give close support to our Infantry and tanks during the attack. Covering fire will be directed to neutralize enemy small arms and anti-tank weapons which may engage the assaulting troops.

35. Covering fire should be planned in advance, whenever possible and will consist of:—

(a) Timed programme.
(b) Pre-selected targets on call.
(c) Impromptu support controlled by an FOO to deal with unforeseen targets.

36. Covering fire may consist of any of the types referred to in Section 38, paragraphs 22 to 28.

Defensive fire

37. Defensive fire tasks may be sub-divided into:—

(a) *DF tasks in depth:* sited with the object of disorganizing the enemy's preparations for attack, and of striking at his reserves and HQs during the assault; usually planned at brigade or division.
(b) *Close DF tasks:* to break up an enemy attack when it is forming up, or during the assault; planned by the battalion commander.
(c) *DF (SOS) tasks:* chosen from the close DF tasks which cover the most likely line of enemy attack. Guns allotted to a DF (SOS) will be laid on it except when engaging other targets, therefore no fire unit can have more than one DF (SOS) task. It follows that the number which can be chosen is governed by the amount of artillery in direct support. The minimum effective fire unit for this purpose is normally accepted as a close support or medium section.

38. The number of DFs required by any unit will vary with the ground and the dispersion of the unit; they should, however, be kept to a minimum consistent with producing adequate support and not prejudicing the speed of response.

39. When a number of DF tasks are tactically related and likely to be required at the same time, they may be grouped and given a nickname, and thus quicken the response of fire. The maximum number of targets in a group cannot exceed the number of fire units available to the battalion.

40. In an attack, DF and DF (SOS) tasks required to cover the period of reorganization on the objective must be arranged before the assault as part of the fire plan. They can be adjusted and registered after the objective is reache .

Containment and counter-stroke nuclear tasks

41. The aim of nuclear tasks in the containment and counter-stroke phases of the nuclear defensive battle is to destroy the enemy prior to any exploitation by ground forces.

42. Areas in which nuclear targets are likely to appear will become apparent when the commander makes his appreciation. The need to cover these areas will determine the deployment of nuclear artillery and surveillance devices.

43. Subsequently, the enemy will be engaged after target analysis and after the releasing authority has approved on an opportunity basis. Exceptionally, nuclear weapons can be allocated to pre-arranged targets, but if this is done both the weapon and a specific yield must be deployed and committed to a particular target and flexibility will be lost; for this reason pre-arranged targets should be avoided.

Covering fire for counter-attacks

44. The aim of covering fire for counter-attacks and counter-penetration tasks is the same as for covering fire in the attack.

45. In the counter-stroke phase of the nuclear defensive battle, the non-nuclear fire plan will be required to deal with enemy unaffected by the nuclear fire plan, or who subsequently recover from it.

Interdiction

46. The aim of interdiction is to isolate the battlefield by the destruction of enemy reserve formations, routes, bridges and supplies.

47. Interdiction necessitates co-ordination with air forces and allied operations and will be planned at army group and corps level.

48. These tasks will be fired by GW regiments and on occasions by Honest John batteries sited well forward.

Harassing fire

49. This is intermittent fire intended to:—

(a) Lower enemy morale by interfering with the movement of troops and supplies and by allowing him no rest.

(b) Force the enemy to deploy early and so lose time.

50. HF must be carefully co-ordinated with the movement of screens and deep patrols. It must be planned on a level where the necessary information is available, perhaps at divisional level.

Counter-bombardment

51. The aim is to destroy or neutralize the enemy's indirect fire weapons. Although destruction on a large scale will seldom be possible, artillery may be silenced by the moral effect of heavy neutralizing fire, the disruption of communications, and by electronic counter-measures.

52. Locating units and artillery Intelligence staffs have replaced the old CB organization. Their tasks are:—

(a) To locate enemy artillery weapons; this includes associated OPs, radars and target acquisition equipment.

(b) To provide target information for our own weapons.

(c) To provide tactical information for the Intelligence staffs.

(d) To provide survey and meteorological data.

(e) To record, collate and disseminate the artillery intelligence obtained.

53. To fulfil these tasks, there will be:—

(a) Locating equipments deployed in company areas.

(b) Locating commanders at brigade and divisional HQs.

(c) Artillery Intelligence staff sections at brigade, divisional and corps HQs.

54. **Counter-bombardment policy.** This is decided by the formation commander advised by the artillery commander, and may be:—

(a) *Active:* bombard or jam targets.

(b) *Silent:* refrain from shooting at or jamming targets but collect information by every means to enable the effective neutralization or destruction of the enemy to be carried out before a specific operation.

55. The policy may often be a compromise. Enemy nuclear weapon sites, once located, may be engaged immediately by the best available means. Nevertheless, a passive policy may sometimes be necessary to build up battle information. If the enemy moves frequently, however, an active policy will be desirable.

56. **All arms responsibility.** All arms must assist by protecting the small, widely dispersed locating detachments and by passing all information on enemy artillery to the artillery Intelligence staff by the quickest means. An important part will be the sending of SHELREPS, MORTREPS and, where possible, shell, bomb, and rocket fragments.

SECTION 40.—FIRE PLANNING

Definitions

57. *Nuclear.* Because of the problem of allocating warheads to formations, based on their operational needs, and because of the wide radius of effects of a nuclear explosion, control will not normally be exercised below corps HQ. Although delivery systems may be placed under command of divisions or even brigade groups and commanders may be free to engage nuclear targets in furtherance of their tasks, it will be necessary for them to obtain final approval from corps, lest a conflict of interests should arise. If and when sub-kiloton weapons come into service, control might well be exercised at a considerably lower level.

58. *Non-nuclear.* The non-nuclear attack fire plan will vary from a simple battery plan, made by a battalion or company commander and the battery commander or an FOO, to a more complicated plan, involving a number of batteries, which calls for co-ordination by the close support regiment commander or by HQRA at division. Attack fire plans are therefore divided into two types:—

(a) *Quick fire plan:* originated forward at brigade group or lower level. The plan is passed by the close support regiment or battery commander or FOO direct to the guns.

(b) *Deliberate fire plan:* originated at brigade group or higher level and usually involving more than one regiment.

Sequence of nuclear fire planning

59. In making a nuclear fire plan, the commander will first arrive at an outline tactical and nuclear plan, in conjunction with his artillery adviser, and make a provisional warhead allotment. For detailed artillery fire planning to proceed, the commander's guidance will be required, especially on:—

(a) The nature and extent of enemy casualties and target damage required, and when required.

(b) Troop safety, particularly the degree of risk acceptable.

(c) Other special considerations, such as whether fall-out must be avoided, whether special induced radiation considerations exist, and whether certain routes or areas are to be left free from obstruction to allow for subsequent exploitation by friendly forces.

60. As a result of the commander's guidance on these points, and after target analysis, the artillery staff will recommend the appropriate:—

(a) Delivery system.
(b) Yield.
(c) Height of burst.
(d) DGZ.
(e) Time of burst.

61. They will also advise whether any modifications of existing troop safety precautions is desirable. After the commander has approved these recommendations, detailed artillery instructions will be issued for the implementation of the fire plan.

Non-nuclear attack fire plans

62. The battalion commander responsible for the tactical plan of attack is also responsible for the fire plan. The battery commander is responsible for giving advice on the best use of the artillery and ammunition allotted for the operation and also for the implementation of the fire plan.

Sequence

63.*(a)* *The task* is defined by a higher commander and resources including artillery and ammunition are made available. These will dictate the number of targets which can be engaged by the artillery at one time and also the type of fire plan.

(b) *The outline tactical plan* is made by the battalion commander. The battery commander will indicate the best use of the artillery resources available. The number of targets which can be engaged simultaneously by the artillery may well affect the tactical plan. As a guide, one battery of 25 pr or 105 mm guns can engage one target at one time. One battery of medium guns can engage two at one time.

(c) *The outline fire plan* is made by the battalion commander and the battery commander. It might include:—

(i) Need for preparatory bombardment.
(ii) CB or counter-mortar fire.
(iii) Use of smoke.
(iv) Whether registration is permissible.
(v) Availability of Infantry mortars.
(vi) Likely objectives.

(d) *The detailed tactical plan* is made by the battalion commander. While the battalion commander is considering the plan, the battery commander should be given time to:—

(i) Issue a warning order to the guns.
(ii) Initiate registration on agreed targets, if permissible. Attention to these two details at this state will save time subsequently.

(e) The detailed fire plan is agreed between the battalion commander and the battery commander. Before the battery commander can consider the employment of the artillery, he must know the:—

(i) Phasing of the attack.

(ii) Start Line.

(iii) Objectives.

(iv) Rate of advance.

(f) Agreement must be reached on:—

(i) *Targets to be engaged:* the relative importance of each target, and the weight of fire required. Targets which are subsequently to be assaulted by Infantry may be more important and may require a heavier weight of fire than those which require neutralization alone.

(ii) *Type of fire required* on each target.

(iii) *Duration of engagement of* each target can either be laid down by the battalion commander or calculated by the artillery adviser on the rate of advance and the distance to be covered. The time at which fire must lift depends on the safety factor of the weapon used.

(iv) *Fire units* to engage each target including tanks, if used, and Infantry mortars. A support platoon commander should be nominated by the battalion commander at this stage to co-ordinate the fire of the available mortar sections with that of the artillery. He should be responsible for advising the battery commander as to the best use of the mortars, and for the technical work required to produce effective mortar fire on the targets and at the times agreed with the battery commander.

(v) *Allotment of FOOs.* In addition to FOOs in support of and moving with assault or follow-up companies, the battery commander will always try to keep one OP officer static to cover the assault.

(vi) *Authority to modify the fire plan:* should usually be retained by the battalion commander. It is unlikely that the fire plan will be fired precisely as planned and company or platoon commanders may request modifications in the light of a changing situation. It is for the battalion commander, advised by the battery

commander, to decide whether modification is necessary or desirable; it is for the battery commander to ensure that modification can be quickly put into effect.

(vii) DF on reorganization should be planned at this stage on the lines described in Section 39, para. 37.

(viii) *Timings:* these are largely a matter of compromise. The battalion commander must accept that accuracy will suffer if undue speed is demanded. Time should be allowed for registration, for the battery commander to pass his orders to the guns, and for the detailed work in artillery command posts on which the effectiveness of the fire plan will largely depend. These activities are largely concurrent with battalion deployment, but it is often advisable for the battalion commander to accept some delay in the interests of accuracy and effectiveness, particularly where the safety of the assault troops is concerned.

Non-nuclear DF plans

64. The aim of the DF plan is to enable a specified weight of fire to be brought down quickly during the enemy's preparations for attack and during the assault.

Sequence of DF planning

65 *(a) Battalion level:* the battalion commander advised by his battery commander chooses close DFs including DF (SOS). He may also suggest DF in depth. The battery commander allots targets numbers and sends them together with any grouping or restrictions, to his own close-support battery and also to the close support regimental commander.

(b) Brigade group level: battalion DF plans are co-ordinated and DFs in depth are added, in consultation with the brigade commander. Targets are grouped and may be sent to HQRA if a fire plan is to be produced.

(c) HQRA level: where frontages permit, brigade group DF plans are co-ordinated, DF in depth added, and a divisional DF plan is issued.

SECTION 41.—THE ARTILLERY OBSERVATION POST

General

66. Artillery OPs are established primarily for the purpose of directing observed fire into suitable targets in support of an

operation and secondly for the passage of information. The control of observation and the deployment of OPs can be treated as an integral part of the Infantry plan, quite separate from the deployment of the guns.

Tasks

67. An OP party may be deployed for a long or short period, according to the nature of the operation it is supporting. It may be required to:—

(a) Provide ground observation and fire control over a sector of the front in attack or defence.

(b) Carry out some special task, such as the registration or engagement of a target which cannot be seen from any of the OPs already deployed.

(*c*) Act as an FOO party, moving with, or in close touch with, attacking or withdrawing troops and establishing an OP when targets have to be engaged or when this is likely.

68. The technical duties of an OP party are the same whatever its role.

Composition

69. The party manning an OP usually consists of:—

(a) An APC or 1-ton armoured vehicle:
OP officer;
two driver operators;
one driver.

(b) ¼-ton vehicle
two driver operators;
one NCO (technical assistant).

70. This party is sufficient to drive and maintain the vehicles, provide communications and carry stores. But under certain circumstances, eg. in mountainous or jungle country, help may be needed to establish and to maintain OPs.

Control of observation

71. The battery commander of the affiliated close support battery will be responsible, within the directive of the close support regiment commander, for the provision and control of observation for the battalion. The battery commander will decide in consultation with the battalion commander:—

(a) How many artillery OPs are required in the battalion area.

(b) OP areas.

(c) Zones of observation.

72. He will deploy the OPs accordingly. He will usually leave the detailed siting of the OP to the OP officer.

Protection

73. The battalion commander must also discuss with the battery commander for the protection of OPs, if they cannot be sited within Infantry localities.

Deployment

74. Only the minimum number of OPs which can effectively provide the observation needed should be deployed. Some OPs should, if possible, be kept in reserve to meet unforeseen requirements and to act as reliefs. The work of an FOO is exacting and while the affiliated close support battery will always provide the maximum number of three FOOs when necessary, to continue to do so indefinitely will adversely affect the quality of the fire support (in peacetime there are only two FOOs on the establishment of a close support battery).

Observation in the attack

75. This may be provided by:—

(a) Static OPs: to provide continuity of observation while other artillery OPs move forward and to observe, and if necessary correct, fire on the time programme for covering fire, and to pass back information.

(b) FOOs

(i) To deal with impromptu targets and requests for modification during the attack.

(ii) To provide continuity of artillery support after the covering fire programme has been completed and our troops have reached the objective, with particular reference to reorganization and calls for DF.

(iii) To pass back information.

Positioning and movement of FOOs in attack

76. The FOO will position himself where observation is best, cutting out time spent in moving, and when away from the company commander he will maintain communication by radio. From the FOOs own observation and from the traffic passing on the radio, he will try to anticipate calls for fire and place himself where he can observe the likely target area before the call is received. He will then be able to provide the quickest possible support and to relieve the Infantry commanders of the responsibility for ranging on the target.

77. The FOO must allow himself enough time to study the ground beyond the objective before any enemy counter-attacks are launched. He will, therefore, usually plan to arrive on the objective immediately after it has been cleared of the enemy.

78. It follows that by day the FOO should not be tied to a company HQ unless that HQ is likely to provide the best position from which the FOO can carry out his task. By night, although with present equipment an FOO cannot see to shoot, he can still pass information and calls for fire. He should accompany a selected company HQ in the attack, rather than attempt to find his own way to the objective with the difficulty of finding the forward troops in the dark.

Observation in defence

79. Observed fire is the best way of dealing with an enemy whose movement cannot be forecast. OPs should be deployed to cover all likely approaches. They will be responsible for engaging the enemy with observed fire and for calling down DF where applicable. By day they will occupy positions offering the best observation but by night will normally be at company HQ.

80. Where possible some OPs should be kept in reverse to provide reliefs and also for support of counter-attack plans.

Section 42.—ARTILLERY COMMUNICATIONS

General

81. The effectiveness of artillery fire depends on the passage of information. Efficient fire support therefore depends on first class communications.

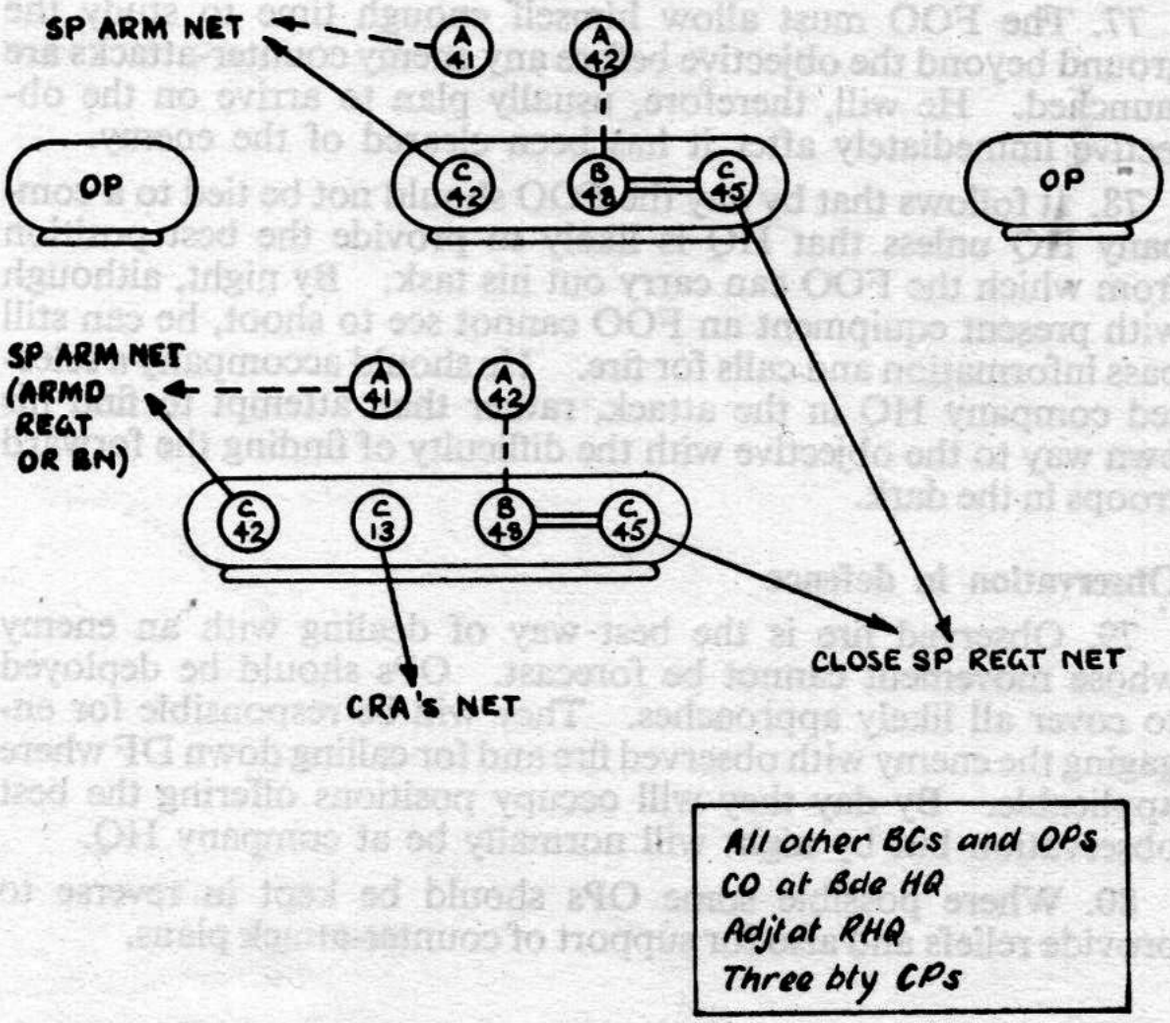
Principles

82. A diagram showing the outline communications of the battery commander and OP officers of a close support regiment (Abbot) is shown in Fig. 19. Points to note are:—

(a) Observation posts and battery commanders are equipped:—

(i) To pass fire orders to their guns.

(ii) To communicate with the troops they are supporting. Though the gunner and the supported commander are normally together, this link must be established. It ensures against a breakdown in support if they should become separated, it allows the gunner to move when necessary, and it means that there will be up to four sets on the battalion net through which the Infantry can call for fire.



NOTES

a. Three OPs similarly equipped. C45 normally on regimental net with flick to battery nets when required.

b. BC has in addition, C13 set for use on CRA's net.

c. When OPs or BC move on foot, following manpack sets are taken:—

(1) A41—Sp arm net (coy or bn)

(2) A42—re-broadcast through B48 and C45 to own regimental net.

d. BCs and FOOs on inf/armd nets use own callsigns with prefix "GOLF", if necessary,

eg: G11, 12, 13, 19 (19 is BC)
G21, 22, 23, 29 (29 is BC)
G31, 32, 33, 39 (39 is BC)

FIG. 19.—Outline radio communications of the battery commander and OP officers of a close support regiment (Abbot).

(b) FOOs and battery commanders can go forward on foot and still maintain both these links.

(c) Battery commanders and OPs will normally be on the close support regimental net. This allows information from all OPs to be known quickly over a wide area and fire from the whole regiment to be called for more repidly. To avoid overloading the net, battery shoots and below are carried out on battery nets.

Artillery target indication procedure

83. This procedure is designed to allow arms other than artillery to engage enemy targets quickly and effectively with artillery fire. This procedure should only be used when artillery OPs cannot engage the targets themselves, eg, when a company does not have an artillery OP with it or when the OP is unable to see the target. Full details are given in Signals Training (All Arms) Pamphlet No. 7, 1961 (WO Code No. 9735).

CHAPTER XII

INFANTRY AND APCs

SECTION 43.—INTRODUCTION

The role of APCs

1. APCs are designed to provide Infantry with mobility, flexibility and protection which they lack when operating on foot. Their major roles are:—

(a) To form part of the mobile striking force in the advance to contact or encounter battle.

(b) To carry Infantry close to, on to, or through the enemy's defensive positions in the attack.

(c) To create a mobile defence, with the emphasis on the selection of alternative positions and the rapidly mounted counter-attack.

(d) To facilitate a clean break from contact with the enemy in the withdrawal and to speed up the occupation of the next position.

2. The APC is a means of carrying Infantry across a battlefield to the place where they are wanted, in the best possible shape and as fast as possible. It will not normally influence the battle as a fighting vehicle but there will be occasions when it may act in a fighting capacity, eg, when its machine gun is used to give covering fire to an attack.

Characteristics

3. The chief characteristics of APCs are:—

(a) Protection: the vehicles are lightly armoured, and provide protection to the crew against small arms, HE fragments, blast and, when closed down, VT fuse. Some degree of nuclear protection is also provided.

(b) Mobility: they have a road and cross-country performance comparable to the tank (this applies to the FV 432 but to a lesser extent to the Saracen).

(c) Communications: all vehicles are equipped with radio, providing communications down to section commanders. Vehicles at platoon HQ and above have additional radio sets to provide communications to other arms.

(d) Special characteristics of the Saracen APC are given in Appendix E.

(e) Special characteristics of the FV 432 are given in Appendix A.

Organization

4. APCs are now organic to the establishment of certain Infantry battalions. The APC is then a section vehicle, its driver and commander being members of the rifle section. The maintenance of vehicles becomes a company responsibility.

SECTION 44.—COMMUNICATIONS

Background

5. The successful use of APCs demands of Infantry commanders a reappraisal of the previous accepted scales of time and distance and the minimum acceptable standard of radio communication. A commander in an APC can only give orders to his subordinates and receive reports from them by radio. Noise and distance preclude shouting and the tempo of APC operations will seldom permit the holding of O groups on the ground. Radio failure in these circumstances would be disastrous and would make the commander quite useless. This reliance on radio has resulted in APC units being equipped with a more comprehensive scale of sets and command vehicles than ever before.

The basic principles of APC communication

6. All APC communications are based on the following principles:—

(a) All APCs must have:—

(i) A radio.

(ii) An intercommunication (IC) amplifier to enable the commander to talk to the driver.

(b) Radio nets should be as large as possible.

(c) Command vehicles must be duplicated.

(d) Mounted and dismounted radio sets should, whenever possible, work on the same frequency.

The need for radio and IC amplifiers

7. When moving by road it is simple to tell a vehicle commander to follow the road but when moving across country the problem is greater. The vehicle commander must be told where to go and also how to get there. The going changes from moment to moment and routes picked off a map may prove quite impracticable and the enemy himself may add to the difficulties. As radio is the only means of telling anyone to do anything it follows that radio is needed in virtually every vehicle.

8. The reason why visual signals are not used is that vehicles may be out of sight of each other for various reasons: on some occasions, however, they may be useful.

9. Assuming that the APC commander has been told, in some way, that he is to do something, the next problem is to tell the driver. It is useless to shout as the driver will not hear. The only answer is an IC amplifier in *every* APC.

Communications layout

10. A possible communication layout for an Infantry APC battalion is shown in Fig. 20. The operation of multi-control nets as required by this layout and the use of arm indicators when co-operating with other arms are explained in Chapter 6 of Signal Training (All Arms) Pamphlet No. 7, Voice Procedure, 1961, and in Section 21 of the same pamphlet respectively.

SECTION 45.—COMMAND AND CONTROL

Introduction

11. Commanders must be responsible for the command and control of their APCs. Besides controlling the movement of the vehicle, this calls for constant detailed attention to the course of the battle. This can be largely followed from radio information and a study of the map.

12. By moving well forward in positions of observation, commanders can anticipate the enemy's actions and brief their commands to deal with them.

13. Once Infantry are mounted for an operation, orders should almost always be given on the radio and should be in shortened form. This calls for extremely clear and comprehensive orders or directives to be given before the operations takes place.

Layout of HQs

14. The layout and organization of battalion and company HQ in their APCs is all-important if command and control are to be exercised properly. The golden rule is: an intelligent pair of ears in every headset and an officer immediately available to answer on each set. Due to the layout of the harness in the Saracen APC this is not always easy. The layout of the FV 432 improves matters. There are many ways in which the various members of the HQ can be used.

Battalion HQ

15. Apart from operators, the following are normally available

(a) *Commanding Officer:* he must not be tied to any particular net. He can use the commander's harness on which he can listen and speak on any net, and also monitor any two nets if he wishes.

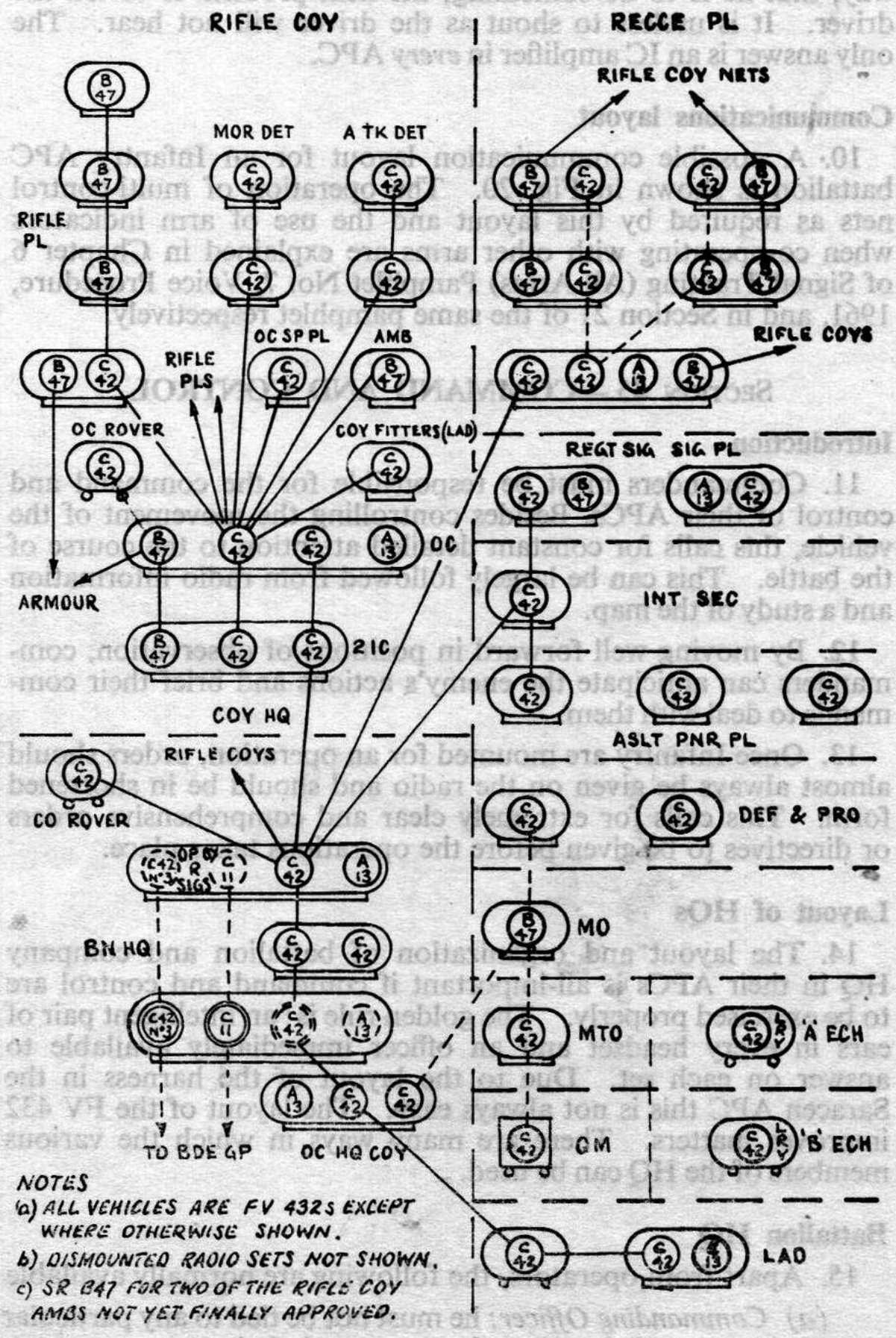


FIG. 20.—Communications layout in an Infantry APC battalion

		C42 (Comd)	C42 No. 3 *(Rear Link)*	HF Altn *A13 C11*
ϕA	Dvr/Op (Total 7)	CO or RSO or LO	OP R Sigs	Regt Op R Sigs Sig.
		C42 (Comd)	*C42 (Adm)*	
ϕB	Dvr/Op (Total 6)	Adjt	Regt Sig	Asst Clerk IO or Int NCO
ϕC	Dvr R Sigs (Total 7)	Regt Sig.	2IC or Op R Sigs	Regt Op R Sigs Sig Clerk

Fig. 21.—Battalion HQ vehicles—suggested allocation of individuals to vehicles and radios in an advance to contact setting.

(b) 2IC and adjutant: these two officers should be primarily responsible for manning the forward link on the battalion command net and the rear link to brigade HQ

(c) Intelligence Officer, assistant Intelligence Officer (Education Officer) and Intelligence Sergeant: these three should be responsible for collating and disseminating Intelligence. There are times when, perhaps, up to two of them can take turns at manning a radio, otherwise they must be free to listen to both forward and rear links or any other net, eg, tank squadron net.

(d) Signal Officer, assistant Signal Officer (in war) and Signal Sergeant: these three will be primarily concerned with maintaining communications and should not become too tied down to manning radios. There will be times when they can do so on a roster basis.

(e) OC and 2IC HQ Company: one of these two officers will almost certainly be at battalion HQ whilst the other will be commanding A echelon. OC HQ Company may be used at battalion HQ to control a separate battalion administrative net as the means of communication to A echelon, RAP, etc. Alternatively he could be in command of A echelon and at the same time act as an alternative battalion HQ. If the 2IC of HQ Company is the officer trained in NBC duties, as suggested in the Establishment, there is a case for him being at battalion HQ. Whichever of these two

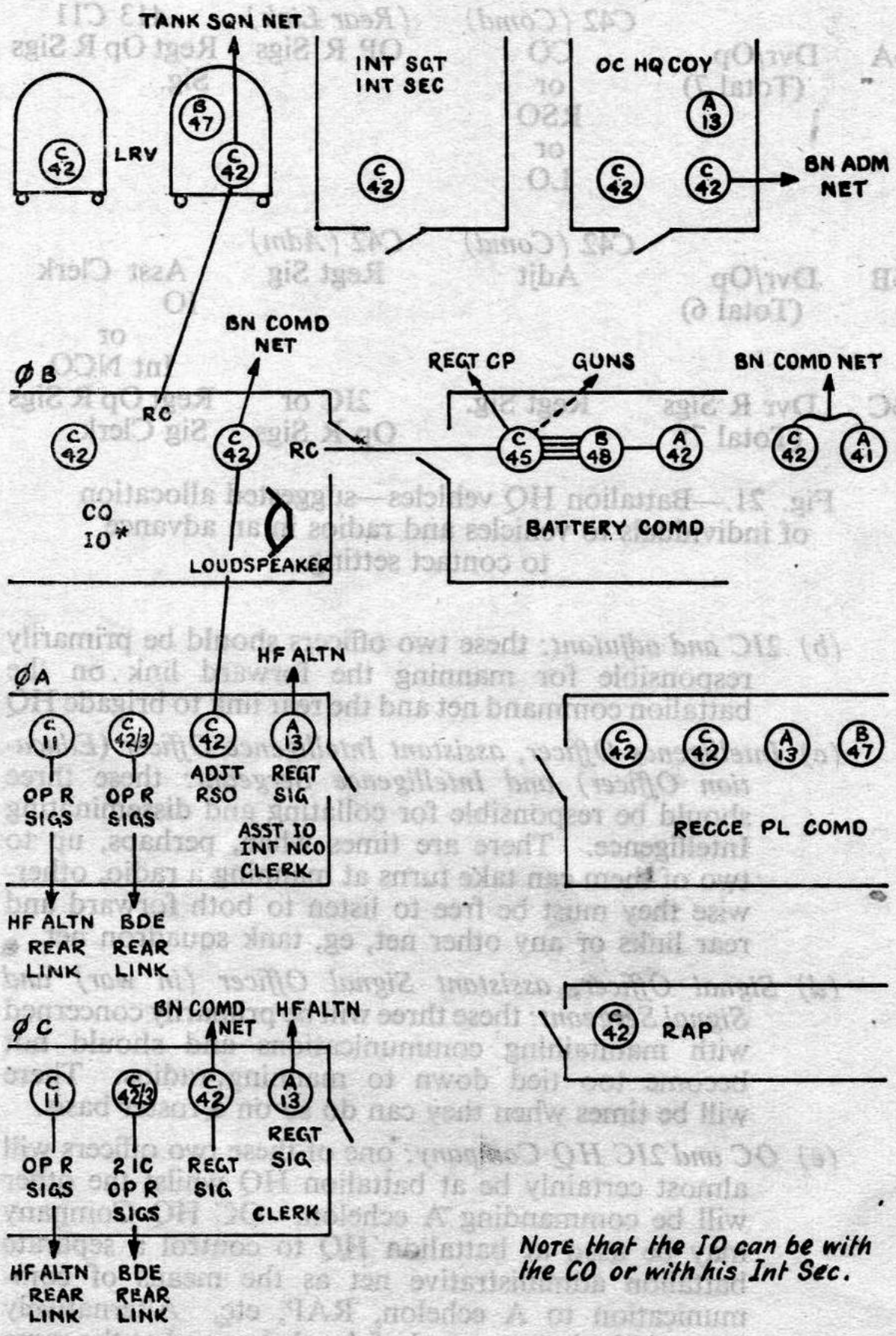


FIG. 22.—Battalion HQ—allocation of individuals to vehicles and radios in a nuclear defence setting.

officers is at battalion HQ, when not otherwise committed, is available to assist the battalion 2IC or adjutant by manning either the forward or rear links.

(f) Reconnaissance platoon commander: in certain circumstances this officer may be at battalion HQ and available to some extent for manning radios. He will of course work in close conjunction with the intelligence officer.

16. An allocation of individuals to vehicles and radios, which would be suitable in an advance to contact setting, is shown in Fig. 21. Those named in para. 15 who are not mentioned would be travelling in their own APCs.

17. An allocation of individuals to vehicles and radios which would be suitable to a nuclear defence setting, at times when battalion HQ is mounted, is shown in Fig. 22.

Rifle company HQ

18. Apart from operators, the following may be available:—

(a) Company commander: should not be tied to any one net but can listen and talk on any net and can monitor two.

(b) Company 2IC: should man the rear link to battalion HQ.

(c) Support platoon commander: when available should control the forward net to platoons.

(d) CSM: can listen to the rear link to battalion HQ or to the tank squadron net.

(e) Company clerk: can also help by listening on any net.

19. An allocation of individuals to vehicles and radios, which would be suitable in an advance to contact setting, is shown in Fig. 23. The same allocation would be suitable to a nuclear defence setting at times when the company is mounted rather than dug in.

ϕA	Dvr/Op (Total 7)	C42 (Comd)	C42 (Rear) A13 (Link)	A41 B47	A41 Comd	A41 Rear Link	A41 Mor
		Coy Comd or Sp Pl Comd or Coy Op	Regt Sig	CSM	Coy OP	Regt Sig	MFC
ϕB	Dvr/ Op (Total 6)	C42 (Comd)	C42 (Rear) A13 (Link)	B47			
		Regt Sig	Coy 2IC	Coy Clerk	2 × GPMG numbers		

Fig. 23.—Suggested allocation of individuals to vehicles and radios in rifle company HQ

SECTION 46.—EMPLOYMENT

Movement

20. APCs should always move at their best speed, halting on tactical bounds as necessary. They should cover as broad a front as control allows.

21. Infantry in APCs must use ground in the same way as when operating on foot.

Formations

22. The formations which may be adopted are:—

(a) Line ahead.
(b) One-up.
(c) Two-up.
(d) Box.

Defence

23. APCs may be used in defence:—

(a) To give mobility to screens, covering troops and other forward elements.
(b) To mount an immediate counter-attack.
(c) To enable the reserves to be moved to any selected defensive area at short notice, once the enemy's main effort has been disclosed.
(d) To provide extra fire support.

24. Provided the vehicles can be effectively concealed, their communications should prove of great advantage in forward areas.

Withdrawal

25. The use of APCs enables a clean break in contact with the enemy at a much later time than was previously the case.

26. Their communications also ensure a higher degree of accurate control over the whole operation.

Advance or encounter battle

27. The employment of APCs in these operations makes the best use of the mobility, flexibility and protection which they afford. The need for intelligent anticipation by commanders is greatest before contact is made so that orders can be put into effect or simply changed at a moment's notice. A swift reaction to enemy opposition offers the best chance of surprise and success. Commanders at all levels must, therefore, be prepared to

attack at short notice and often without any deliberate artillery fire plan. Tanks almost always lead the advance.

Attack

28. The employment of APCs lends depth to the attack, allows some latitude in timing, and gives added possibilities of surprise. The aim is to carry the assaulting Infantry through the enemy's DF as near to the objective as possible, supported by tanks. This move must be covered by artillery fire. The weapons mounted on the APC should be used, where possible, to give extra fire support.

29. The dismounting area may be selected clear of or on the objective and should ideally have the following characteristics:—

(a) Be easily recognizable and in dead ground.

(b) Enable the Infantry to debouch at right angles to the objective in the same manner as a Start Line in a conventional attack.

(c) Be within assaulting range of the objective.

(d) Be clear of enemy DF tasks.

30. APCs may be of value for exploitation in the reorganization phase after the attack.

SECTION 47.—HANDLING A TROOP OF APCs

Harbour area

31. Vehicles will be camouflaged and dispersed at intervals of 100-200 metres whenever the ground permits.

32. If camouflage nets are used they should be removed before action by the Infantry section working as a team, and returned to their travelling positions. These will normally be on the vehicle, but clear of hatches, exhausts and air intakes.

Initial orders

33. The initial orders by the company commander must be extremely clear and comprehensive and, in the case of a long advance, might well be in the form of a directive.

Suggested order headings

34. Suggested order headings are:—

SITUATION

1. *(a)* Enemy (likely points of enemy resistance, etc).

(b) Friendly forces.

(c) Attachments and detachments.

MISSION

2. ("—Company is to clear axis as far as ")

EXECUTION

3. *(a)* General outline (Formations and how to move in relation to tanks)

(b) Detailed tasks (Platoon positions in the company move forward)

(c) Co-ordinating instructions.

(i) Assembly/harbour areas (Location, order to move there, action there)

(ii) SP—"See my map".

(iii) H hour

(iv) Axis/boundaries—"See my map".

(v) Report lines—"See my map".

(vi) Company objective—"See my map".

ADMINISTRATION AND LOGISTICS

4.

COMMAND AND SIGNALS

5. *(a)* Positions of company commander, company HQ, etc.

(b) Nicknames—"See my map."

(c) Radio netting.

(d) Light signals.

35. The following points should be noted:—

(a) Infantry section commanders must take careful note of all co-ordinating instructions, report lines, etc.

(b) It is recommended that, whenever possible, section commanders attend the company commander's orders.

36. Having issued such orders or a directive, subsequent orders should be brief. An example of brief orders for an attack, to be given over the radio, is shown in Appendix F.

Platoon/troop orders

37. As the company commanders/squadron leaders will be heard by sections/tanks, it is not considered that platoon/troop commanders need send any more than in the following examples:—

(a) "All stations 31, ack orders SUNRAY 30, two up, over" or at worst

(b) "All stations 31, ack orders callsign 30, two up, callsign 31C Left, callsign 31B Right, over."

38. Using the above headings as a basis for quick verbal orders, it should seldom be necessary to take more than two or three minutes for the issue of such orders.

Operations with tanks

39. Tanks should always move in advance of APCs across open country. In close country, where it is necessary for the Infantry to dismount, tanks will operate in a supporting role.

40. Infantry commanders will control the movement of APCs by radio. The need to do so should be infrequent if clear orders are issued before the operations begins.

41. When contact is made with the enemy, the initial contact report will probably be made by a tank commander to his squadron leader.

42. This report will be heard by all officers at company and platoon HQ on the squadron net. The Infantry should now be prepared for action.

Dismounting

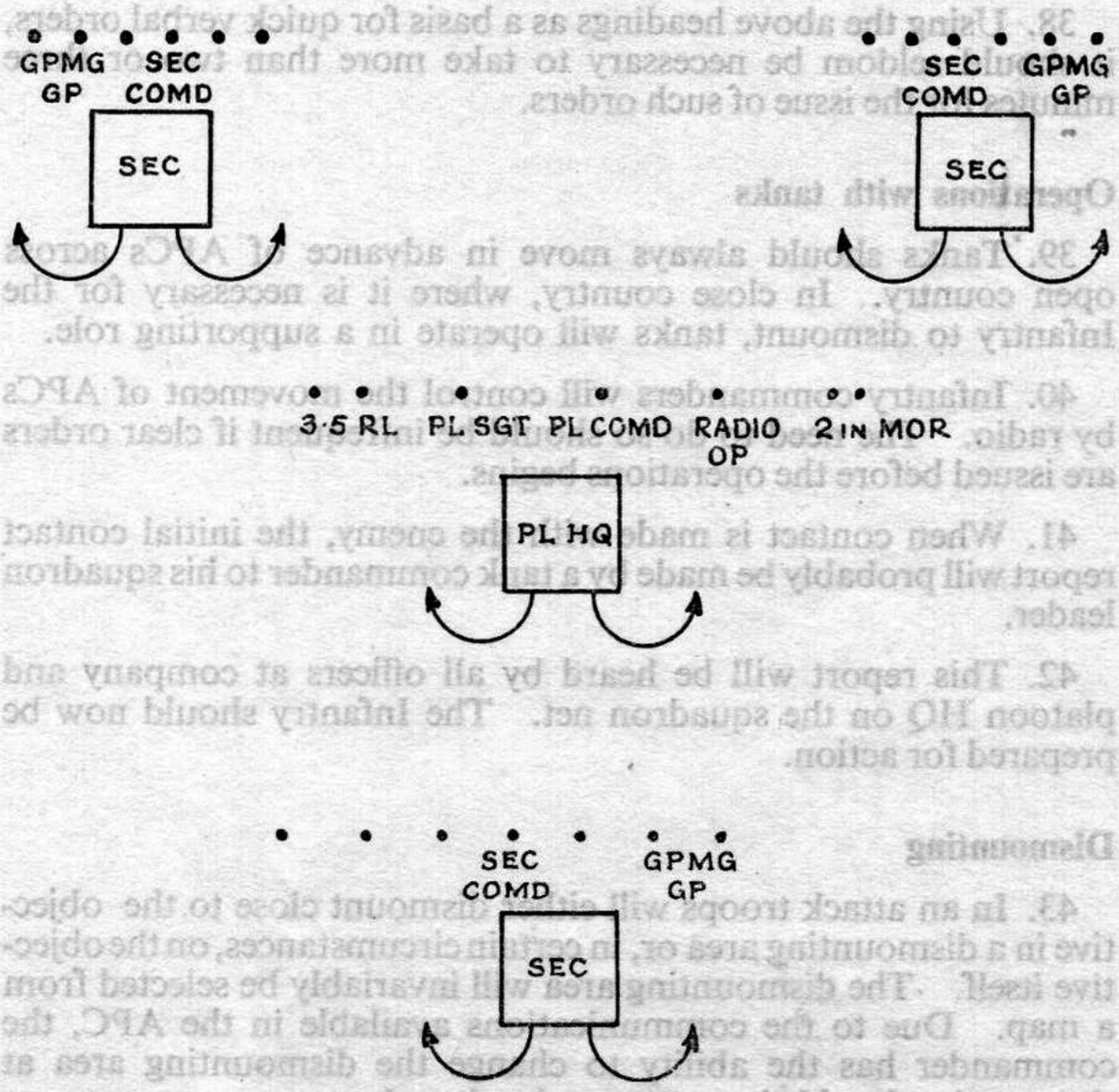
43. In an attack troops will either dismount close to the objective in a dismounting area or, in certain circumstances, on the objective itself. The dismounting area will invariably be selected from a map. Due to the communications available in the APC, the commander has the ability to change the dismounting area at short notice should circumstances be altered.

44. The move should make the fullest use of the protection afforded by the ground, and should be supported by the fire of tanks and/or artillery.

45. On approaching the dismounting area, or the objective itself if that is where dismounting is to take place, manpack sets should be switched on and the APCs should adopt the formation for dismounted action (see Section 49).

46. As soon as the APCs have halted, the assaulting troops should dismount as quickly as possible. In a rifle platoon using a dismounting area, as soon as the men dismount they adopt the assault formations shown in Fig. 24.

47. If troops are going to dismount on the objective they must fix bayonets inside their APCs before dismounting. In this event care must be taken that injuries do not result from bayonets during the actual dismounting. If dismounting is to take place short of the objective then bayonets should be fixed in assault positions which will almost certainly be in the dismounting area.



NOTES

(a) Individual men are shown just after dismounting, in their assault positions which can be about fifteen yards in front of their APCs.

(b) On dismounting, all men must be clear of the rear of their APC as it may reverse back to the Zulu Muster.

(c) Men should not halt closer than fifteen yards in front of their APC which may move forward and turn round in order to proceed to the Zulu Muster.

FIG. 24.—Individual assault positions—a rifle platoon dismounting from APCs.

48. APCs will withdraw from likely enemy DF areas to a position of safety. This may be an area from which they can influence the battle with their organic weapons. This area, which is known as the Zulu Muster, should be selected before the move to the dismounting area takes place. Vehicle commanders must re-

member to pass orders concerning the Zulu Muster to their own drivers. APCs remain in this area until receiving orders to re-organize on the objective.

Hand and flag signals

49. It should seldom be necessary for hand or flag signals to be used. There will, however, be occasions when radio cannot be used, eg, during radio silence, due to radio breakdown or through jamming by the enemy. The sort of hand and flag signals given in Section 48, Figs. 25-45, is based on those in use in the RAC.

Section plans

50. Suggested platoon seating plans for the SARACEN APC are shown in Fig. 46.

SECTION 48—HAND AND FLAG SIGNALS FOR USE WITH APCs

51. **Advance.** Arm fully extended above the head and swung from rear to front.

FIG. 25.

52. **Speed up.** As for Advance, but given on the move.

FIG. 26.

53. **Halt.** Arm raised to full extent above the head.

FIG. 27.

54. **Slow down.** Two or three movements with open hand towards the ground.

FIG. 28.

55. **Switch off.** One arm extended parallel to the ground with hand open and moved across the body.

FIG. 29.

56. **Dismount.** Two or three movements with the open hand towards the ground (two hands).

FIG. 30.

57. **Sub-unit commanders to me.** The hand placed on top of the head.

FIG. 31.

58. **All commanders to me.** Both hands on top of head.

FIG. 32.

59. **Start up.** Circular movement of the hand as if turning a starting handle

FIG. 33.

60. **Mount.** Two or three movements upwards with the open hand, palm uppermost.

FIG. 34.

61. **Line ahead or "one up".** Arm extended above the head and swung from side to side. Arm pointed at APC required to lead.

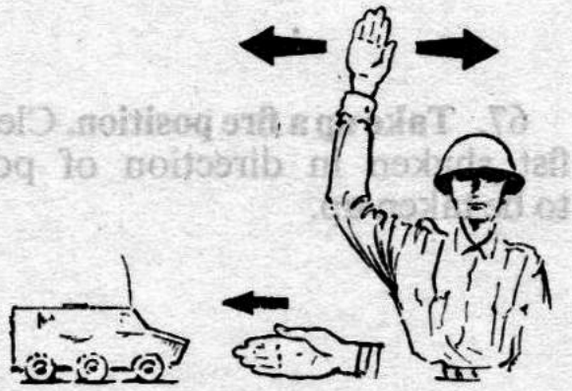


FIG. 35.

62. **"Two up".** Both hands extended above the head and swung from side to side. Point at the APCs required to lead.

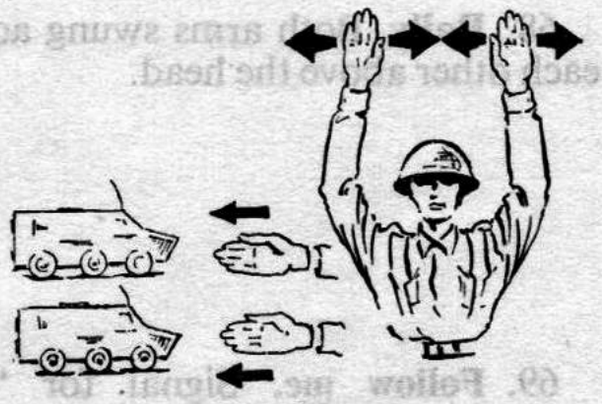


FIG. 36.

63. **Extended line.** Both arms extended sideways parallel to the shoulder.

FIG. 37.

64. **Turn about.** Large circular movement of the arm above the head.

FIG. 38.

65. **Do not conform.** Both hands extended parallel to the ground with palms open, moved across the body.

FIG. 39.

66. **Take up a position of observation.** Palms open and back of hand placed against the forehead.

FIG. 40.

67. **Take up a fire position.** Clenched fist shaken in direction of position to be taken up.

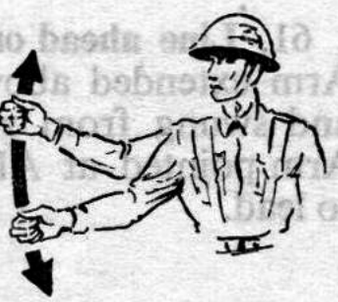


FIG. 41.

68. **Rally.** Both arms swung across each other above the head.

FIG. 42.

69. **Follow me.** Signal for "line ahead" followed by commander pointing at his own APC.

FIG. 43.

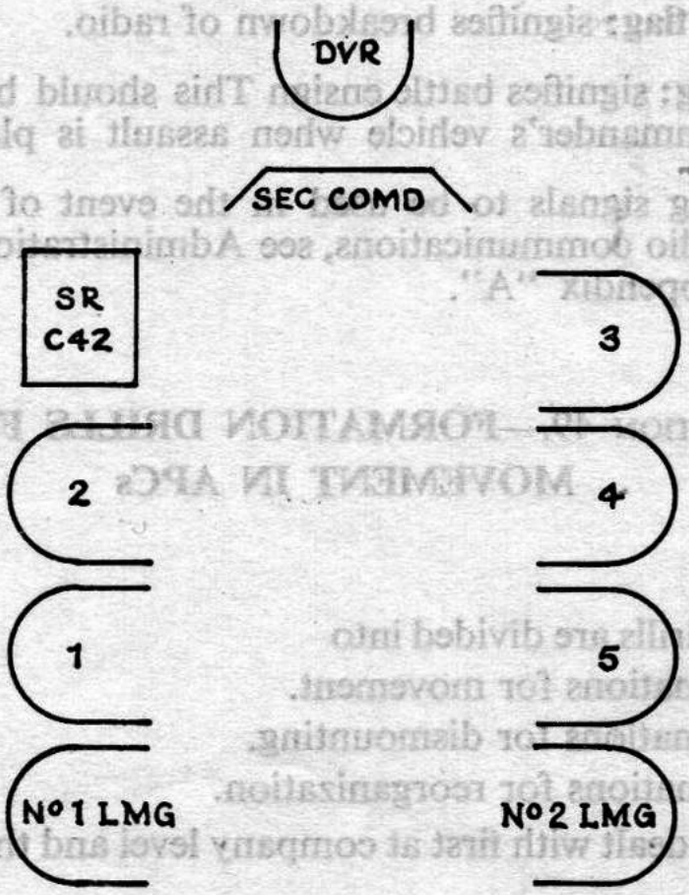
70. **Open out.** Both arms move sideways from chest in a breast stroke manner.

FIG. 44.

71. **Acknowledgement.** Both hands clasped above the head and shaken. (This signal to be used always to acknowledge signal from commander)

FIG. 45.

1. Rifle Section



2. Platoon HQ

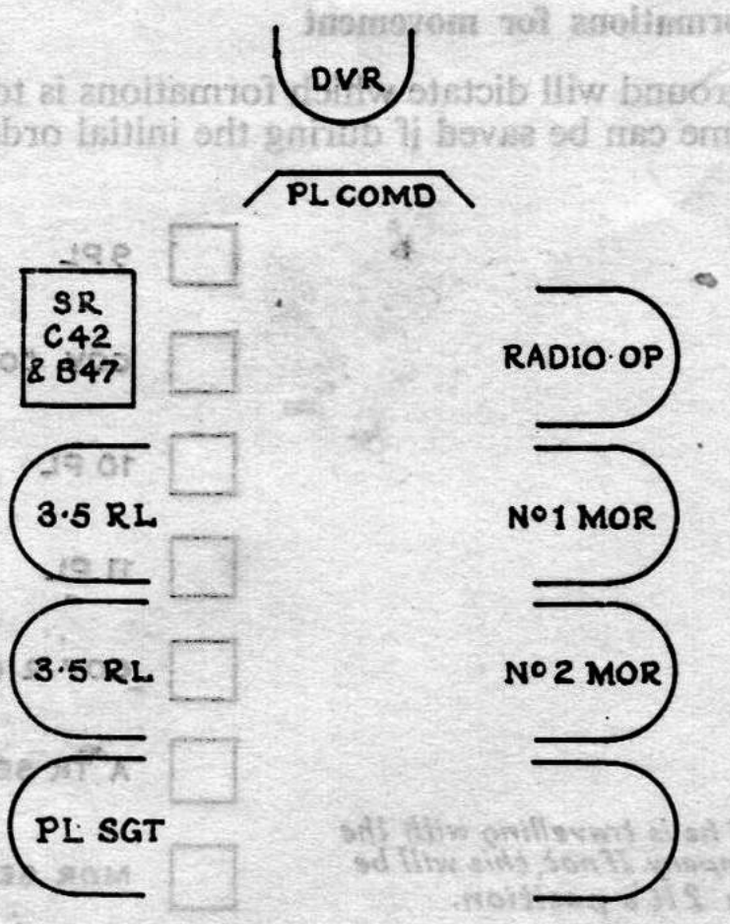


FIG. 46.—Suggested seating plan in the Saracen APC.

72. **Yellow flag:** signifies breakdown of radio.

73. **Red flag:** signifies battle ensign This should be flown from company commander's vehicle when assault is planned.

74. For flag signals to be used in the event of radio silence or lack of radio communications, see Administration in the Field Volume I. Appendix "A".

SECTION 49.—FORMATION DRILLS FOR MOVEMENT IN APCs

General

75. These drills are divided into

(a) Formations for movement.

(b) Formations for dismounting.

(c) Formations for reorganization.

They are dealt with first at company level and then at platoon level.

Company formations for movement

76. The ground will dictate which formations is to be adopted. However, time can be saved if during the initial orders before an

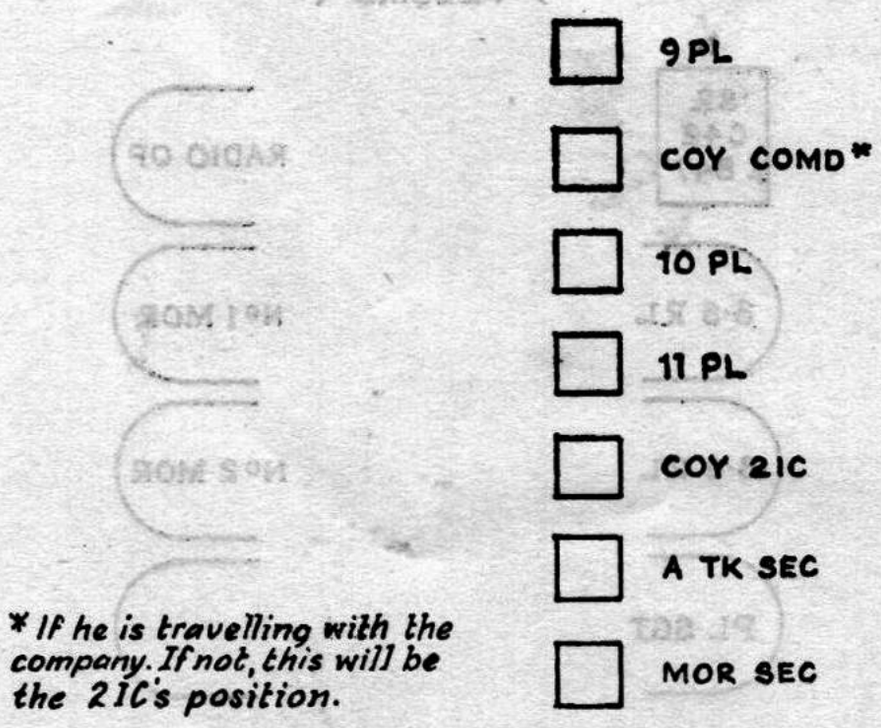


FIG. 47.—"Line ahead"

operation the company commander lays down the relative positions for each sub-unit, eg, in C Company Commander's initial orders, he might have said:

"Formations"

For "Line Ahead": 9 Platoon, Company HQ, 10 Platoon 11 Platoon, Anti-tank, Mortars.

"Box" 9 Platoon Left Forward, 10 Platoon Right Forward Company HQ Centre.
Mortars Left Rear, 11 Platoon Right Rear One Anti-tank detachment on each flank.

"Two up" Forward sub-units as for Box.

"One up" 9 Platoon leading, 10 Platoon Left 11 Platoon Right".

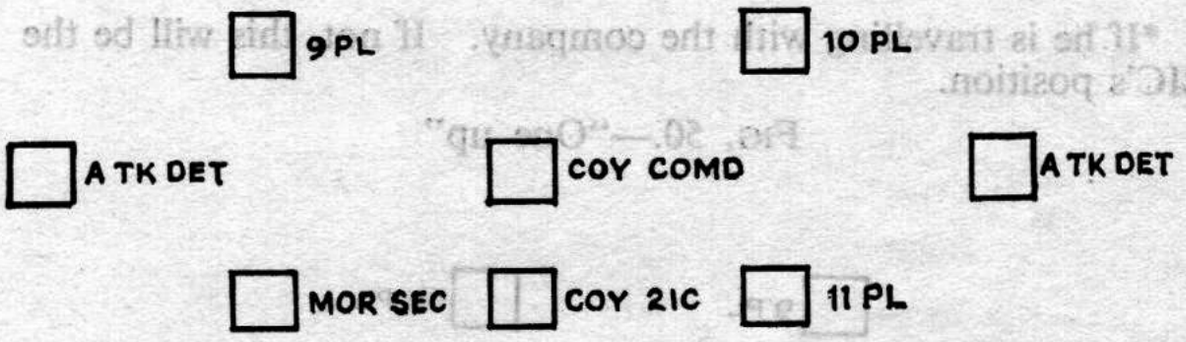


FIG. 48.—"Box"

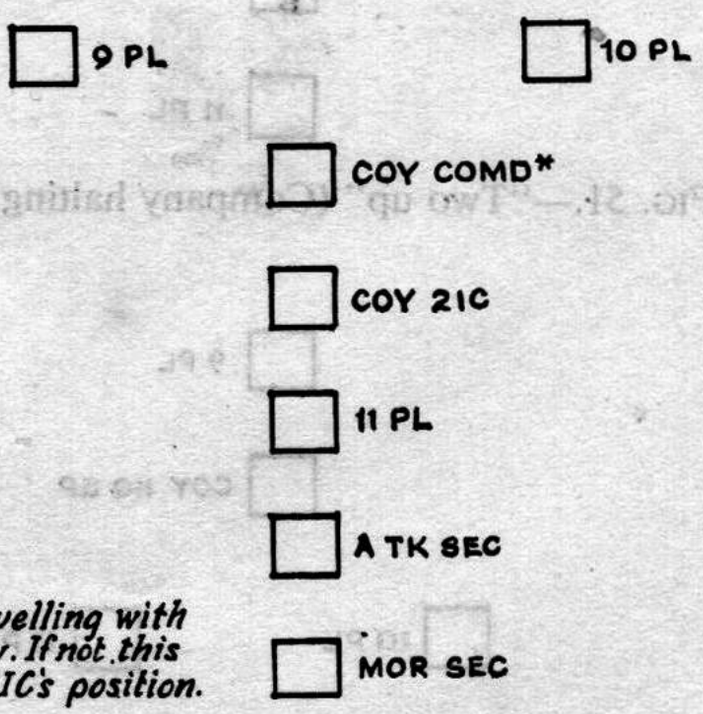
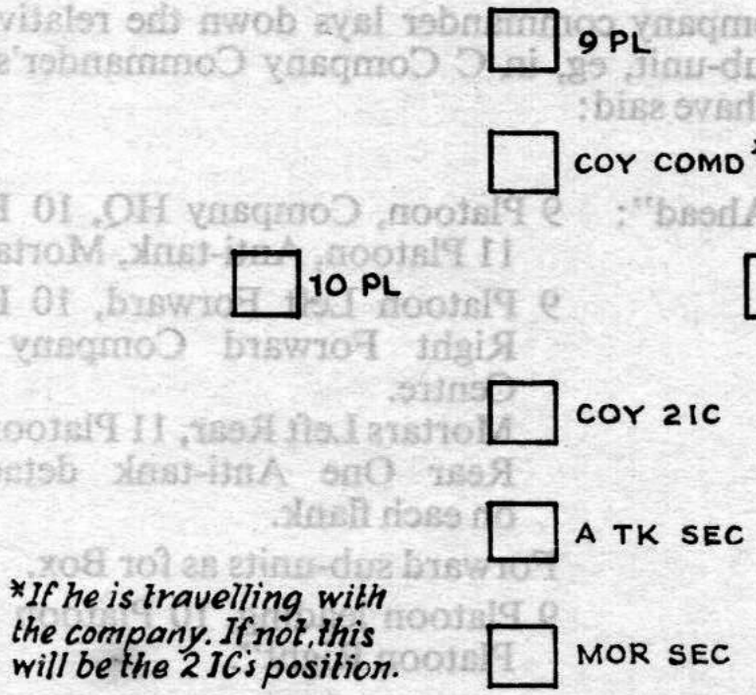


FIG. 49.—"Two up"



*If he is travelling with the company. If not, this will be the 2IC's position.

FIG. 50.—"One up"

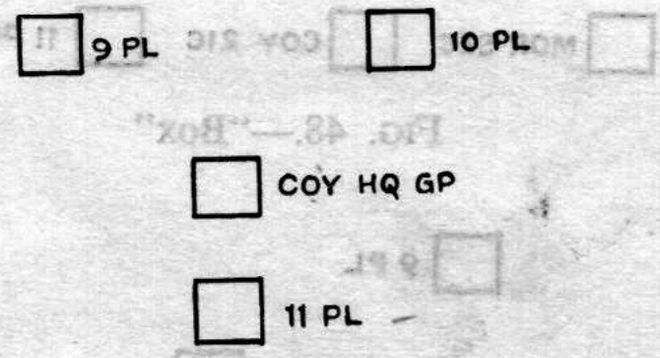


FIG. 51.—"Two up" (Company halting to dismount)

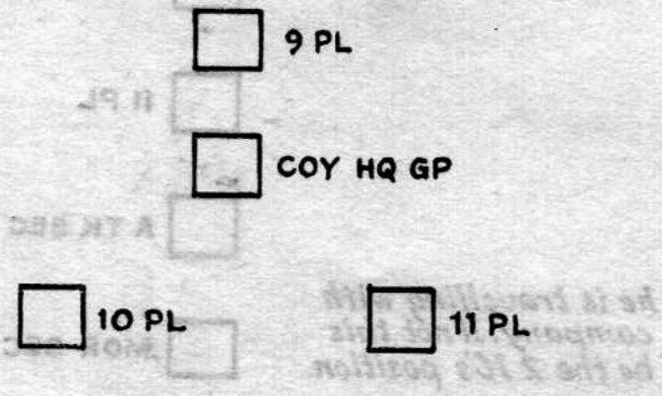


Fig. 52.—"One up" (Company halting to dismount)

77. These orders would result in the following standard layouts:—

(a) "*Line Ahead*": see Fig. 47.

(b) "*Box*": see Fig. 48.

(c) "*Two up*": see Fig. 49.

(d) "*One up*": see Fig. 50.

Company dismounting formations

78. Movement in APCs to a dismounting area may be in any of the above formations according to the ground. Once in the dismounting area, however, it will be normal for the APCs to move into either the "Two up" or "One up" formation before halting, and then face the direction of the assault. The formation in which they halt will depend on the dismounted assault formation ordered; distances between sub-units will, as usual, depend on ground and visibility.

(a) "*Two up*" : see Fig. 51.

(b) "*One up*" : see Fig. 52.

79. At this stage mortars will be deployed in a base-plate position, one MFC travelling with the company commander and one with the 2IC. Anti-tank guns will move straight to the Zulu Muster ready to move up on the success signal.

80. As a drill, in a two-phase assault when "Two up", the second phase will be carried out by the reserve platoon. When "One up", it will be carried out by both reserve platoons or as ordered. Company commanders should consider leaving the reserve platoon in their APCs.

81. When a company is going to dismount on the objective, as opposed to in a dismounting area close to it, the company commander should allocate to each platoon a part of the objective which that platoon will be responsible for attacking and seizing. A platoon will go to the part of the objective allotted to it and dismount there under the orders of the platoon commander who, in the heat of the battle is the only person who can make the quick judgement of the time and place for dismounting (see paragraph 84).

Company reorganization drills

82. Normal reorganization drills will apply. The layout will follow the assault formation at the completion of the final phase. All that will be given in orders is a main direction, which will normally be the drection of the assault (eg, "North") and, possibly, an adjustment (eg, "Minus 200 metres"), where it is

intended to make use of a reverse slope. Based on the company direction given, each platoon will make itself responsible for a pre-determined arc which will be subject to readjustment once the objective is captured. Anti-tank gun arcs and positions will be selected on the objective. Examples of platoon arcs are given below in Figs. 53 and 54. In each case, the assault formations have led on from the APC formations ordered in paragraph 76 above.

(a) After single-phased. "One up" assault—reorganization direction "NORTH"—see Fig. 53.

(b) After single-phased "Two up" assault—reorganization direction "EAST" : see Fig. 54.

Platoon formations for movement

83. These are as shown in Fig. 55. The position of the platoon HQ APC will vary according to circumstances. Distances between APCs will depend on the ground and visibility.

Platoon dismounting formations and reorganization drills

84. When the platoon is about to dismount, the APCs will adopt a formation equivalent to that in which the platoon is about to assault and face in the direction of the assault. When dismounting on the objective itself, the platoon will dismount in the manner described in paragraph 81 above, the APCs halting in the formation previously arranged by the platoon commander.

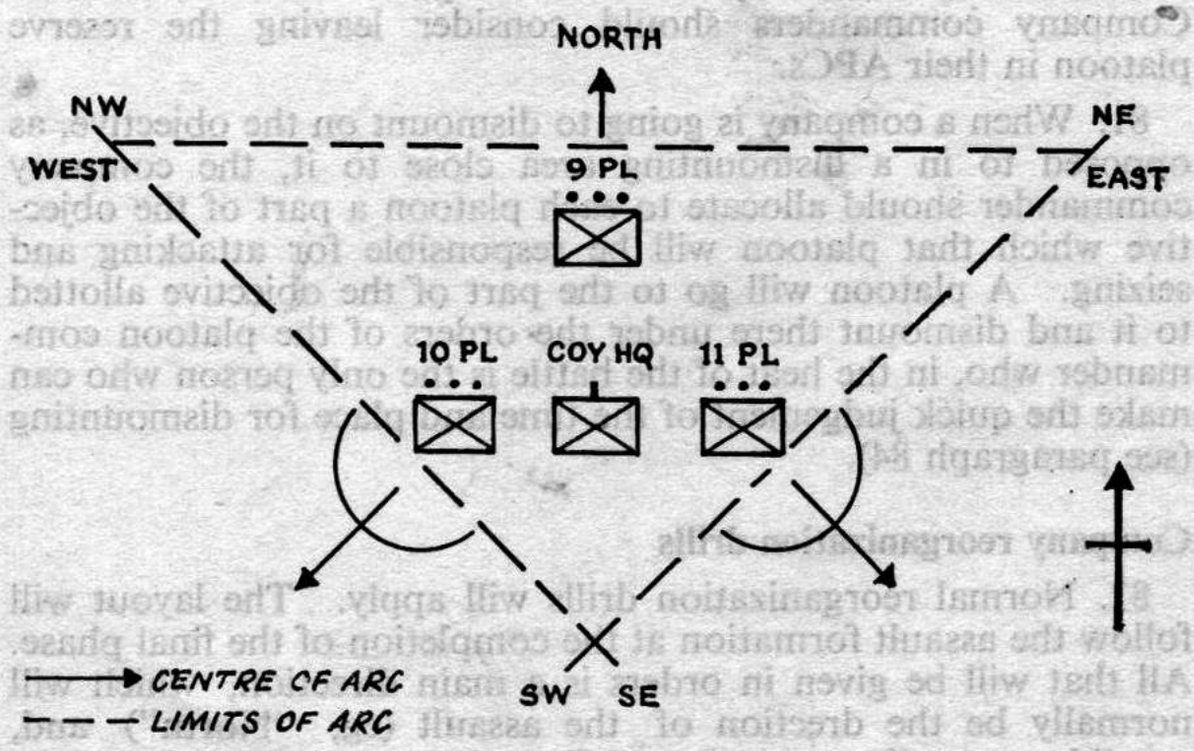


FIG. 53

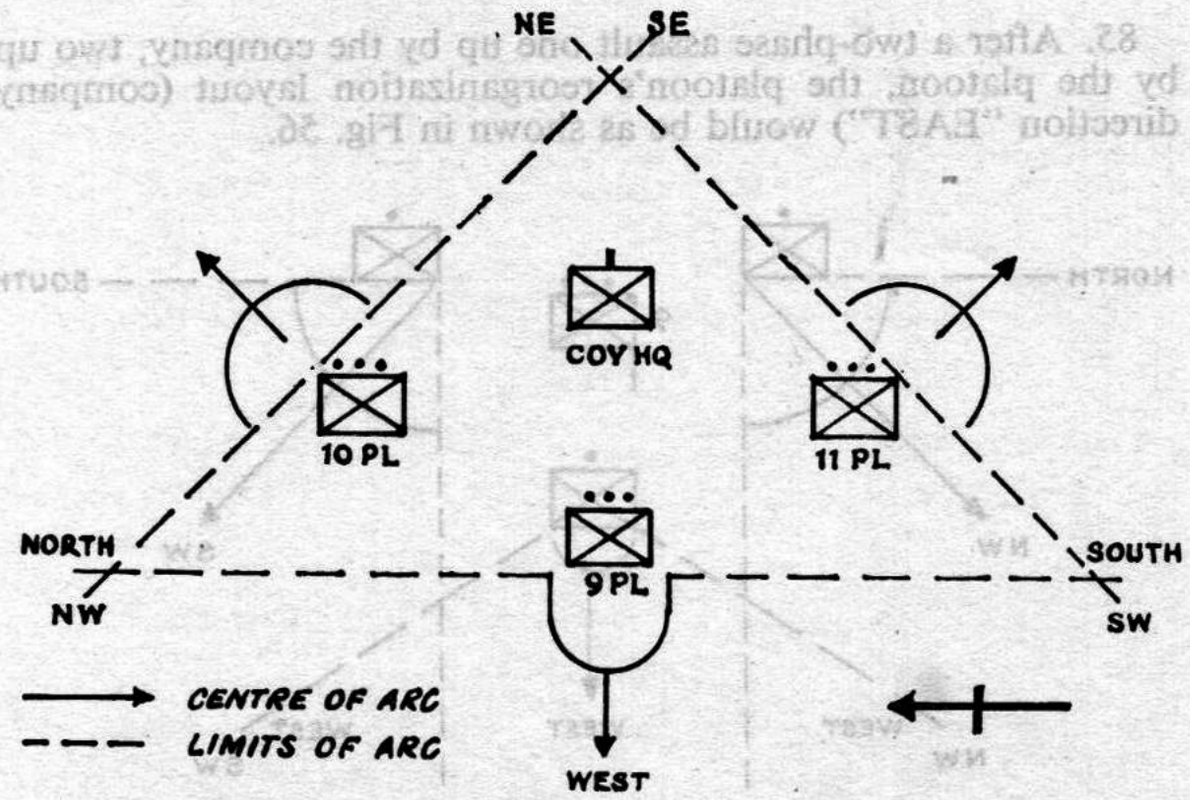


FIG. 54. After single-phased "Two up" assault-reorganization direction "EAST"

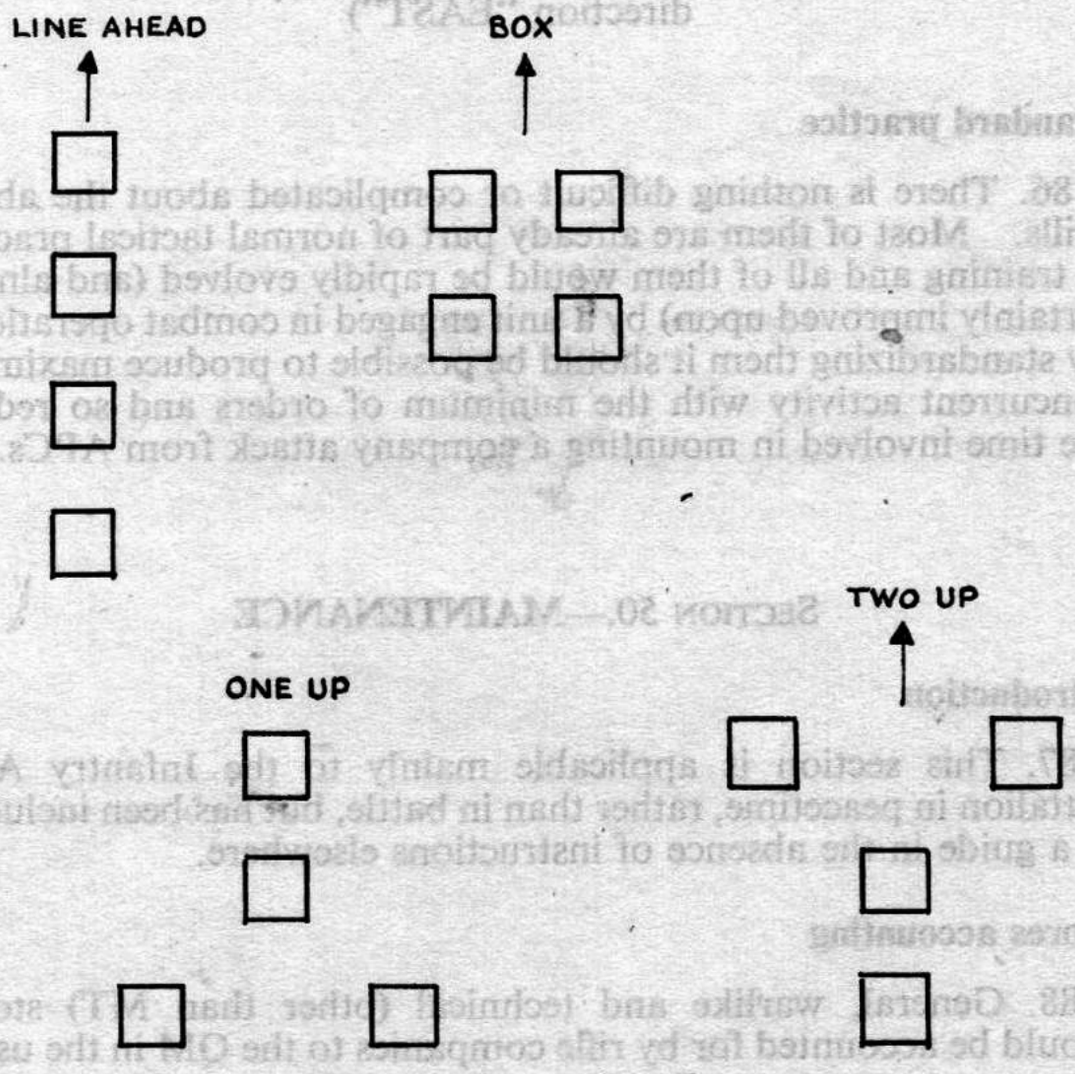


FIG. 55. Platoon formations for movement.

85. After a two-phase assault one up by the company, two up by the platoon, the platoon's reorganization layout (company direction "EAST") would be as shown in Fig. 56.

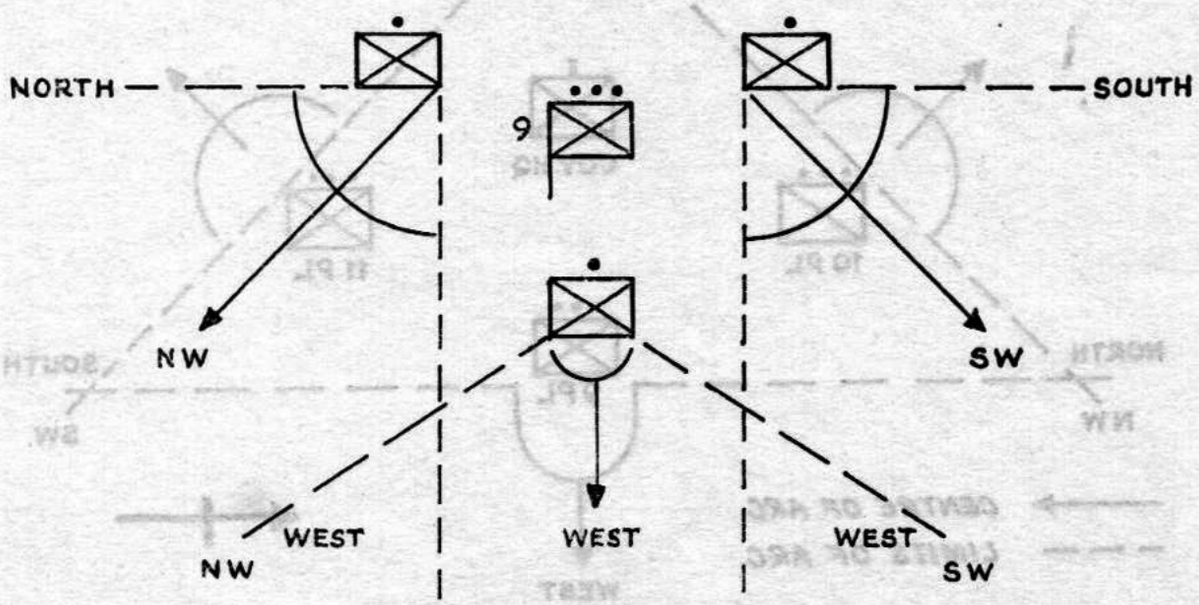


FIG. 56.—After a two-phase assault "one-up" by the company, "two up" by the platoon—reorganization layout (company direction "EAST")

Standard practice

86. There is nothing difficult or complicated about the above drills. Most of them are already part of normal tactical practice in training and all of them would be rapidly evolved (and almost certainly improved upon) by a unit engaged in combat operations. By standardizing them it should be possible to produce maximum concurrent activity with the minimum of orders and so reduce the time involved in mounting a company attack from APCs.

SECTION 50.—MAINTENANCE

Introduction

87. This section is applicable mainly to the Infantry APC battalion in peacetime, rather than in battle, but has been included as a guide in the absence of instructions elsewhere.

Stores accounting

88. General, warlike and technical (other than MT) stores should be accounted for by rifle companies to the QM in the usual way.

89. MT stores and vehicles should be accounted for as follows:—

(a) A vehicles: companies should account to the technical QM.

(b) B vehicles: the MTO should account to the technical QM.

FAMTO

90. The technical QM should control FAMTO and issue to company technical NCOs as required. Detached companies need separate accounting arrangements if the necessary staff are available.

Vehicle record books

91. *(a) A vehicles*—AB 413 maintained by companies.

(b) B vehicles—AB 562 maintained by the MTO.

Servicing

92. Unless a platoon is detached, first parade, halt parade and last parade servicing is more effective as a company parade, by platoons.

93. Mileage/time servicing should be a company responsibility, and should be restricted to simple routine tasks. Long-term servicing and major replacements should be a battalion/LAD responsibility.

94. Most daily maintenance-type tasks, track changes and adjustments should be a section responsibility. So that the maximum time can be spent on Infantry skills, the whole section should participate only in cleaning and in heavy maintenance tasks such as track changing. The rest should be done by drivers.

Inspections

95. The following are suggested:—

(a) Weekly: by platoons, for general cleanliness and tool checks.

(b) Monthly: an A vehicle inspection on AF G 857A, to be carried out under company arrangements. Vehicles should be inspected every third month by the battalion LAD.

(c) Normal B vehicle inspections and checks under the MTO's arrangements.

POL accounting

96. *(a)* This should be controlled centrally under the MTO or technical QM. Self-accounting may be necessary for detached companies, and the company transport sergeant would then be responsible.

(b) Work tickets for B vehicles should be controlled by the MTO.

(c) POL issues should be recorded in AB 413, maintained by companies. All other vouchers should be maintained by the MTO. Detached companies should, of course, maintain POL records.

Recovery and Repairs

97. *(a)* In the first instance this is a company responsibility, backed by the battalion LAD.

(b) The LAD should backload to workshops as necessary.

Defects and modifications

98. Defects are the responsibility of the LAD. Modifications affect technical stores and these should be notified initially through the technical QM or MTO, as appropriate, who then asks the LAD to carry out the necessary modifications.

Replacement and disposal of vehicles

99. To be effected by the technical QM and MTO.

Traffic accident procedure

100. The only company action should be the normal on-the-spot action taken by the driver concerned. All remaining action should be carried out centrally by the MTO. This makes statistical returns easier, accounting more efficient and reduces the number of individuals dealing with Lands and Claims.

CHAPTER XIII

SURVEILLANCE AND PROTECTION

"A bazooka, a grenade, or a terrorist's bullet can at once wipe out the strategist who is studying the trajectory of his intercontinental rocket across the globe."

Rear Admiral Lepotier, French Navy

SECTION 51.—INTRODUCTION

Responsibility

1. The commander of every unit and sub-unit is at all times personally responsible for it's protection. The security of the unit or sub-unit is dependent on protection being provided against all forms of attack, from the front, the rear, the flanks and from the air.

Information

2. Protection is dependent, in turn, on the acquisition of adequate and timely information to enable a developing threat to be met effectively. If the enemy's dispositions are known and his movements are detected, his chances of achieving surprise will be much reduced. The art of maintaining an effective watch on the enemy in all conditions of visibility, by day and night, is called surveillance.

Surveillance

3. Surveillance is achieved at battalion level partly by OPs manned by companies and platoons, and partly by the sections of the reconnaissance platoon, each equipped with a short-range radar set and infra-red binoculars. A pool of eight very short-range radar sets should be available to the Commanding Officer to allocate, as necessary, to company OPs. The introduction of these equipments and devices will not replace the OP which will continue to be the backbone of battalion surveillance. The eyes and ears of the Infantry soldier accordingly remain of paramount importance.

Protective detachments

4. The duties of protective detachments, which may take the form of fighting patrols, include:—

(a) Obtaining information about hostile movements.

(b) Preventing the enemy from gaining information.

(c) Resistance, to gain time.

Protection on the move

5. Detachments for protection on the move are usually referred to as advance, flank or rear guards, respectively.

Protection at rest

6. Detachments for protection at rest are called covering troops and screens.

(*Note.* Protection on the move and at rest, and protection against air, gas, and nuclear attack, are considered in detail in Infantry Training Vol. IV, Tactics, The Infantry Platoon in Battle, 1960, (WO Code No. 9624)).

SECTION 52.—SURVEILLANCE

"Be wiser than other people if you can; but do not tell them so."

4th Earl of Chesterfield—to his son

The reconnaissance platoon

7. Although the reconnaissance platoon will provide the teams of expert patrollers and observers who will be equipped with short-range radar sets and infra-red binoculars, it remains the responsibility of company and platoon commanders to train their companies and platoons in all aspects of OP work.

The OP

8. The orders for the deployment of an OP party must include:

(a) The tactical situation.

(b) The task and zone of observation.

(c) The area in which the OP has to be established.

(d) Communication details.

(e) The time at which the OP must be established and the tour of duty of the OP party.

(f) Any special tasks, such as watching a hut for the arrival of a suspect in an IS operation.

(g) Details of special equipment—infra-red binoculars or patrol radar sets.

Selection of an OP

9. The OP must fulfil as many of the following requirements as possible:—

(a) It should provide the best possible view of the zone of observation, both laterally and in depth, and should cover the ground in front of and on the flanks of our own forward troops.

(b) It should provide cover from observation and should allow the OP team to work in comfort.

(c) There should be a covered approach to it.

Occupation of an OP

10. Great care must be taken to avoid disclosing the position of the OP to the enemy during its occupation and it should normally always be occupied at night. The best OP can be endangered by bad track discipline.

Responsibilities of the officer or NCO in charge of the OP

11. These are:—

(a) To arrange for a continuous watch to be kept on the whole zone of observation.

(b) To make himself familiar with the whole zone.

(c) To ensure that communications are established and maintained.

(d) To report all tactical information about the enemy or our own troops, to his own HQ.

(e) To report all hostile shelling and bombing without delay by using shelreps and nucreps.

(f) To have a good knowledge of the procedure for artillery target indication.

Equipment needed

12. The following equipment is needed in an OP:—

1 inch to 1 mile map
1:25,000 map
} or when abroad, the best available map;

Oblique air photographs;
Panorama;
Compass and protractor;
Binoculars;
Telephone;
Log sheets;
Message pads, lead and chinagraph pencils;

Talc;
Torch;
Watch.
Reserve rations and water may also be needed.

Methods of observation

13. *(a)* Observation must be continuous during daylight and if ordered, by night as well.

(b) The observer should be relieved at least once every two hours. Radar operators may well have to be changed far more frequently.

(c) By night the tours of duty of successive observers must overlap sufficiently for the relieving observers' eyes to become accustomed to the darkness.

(d) Once the main features of the zone of observation are known, it should be examined systematically from one flank to the other, beginning with the foreground, followed by the middle distance, and then the background. The observer must rest his eyes periodically during the process.

(e) In areas where the prevailing colour is dark, careful examination is necessary, as concealment is easy. Where the prevailing colour is light in tone, the ground can be examined more cursorily. Any suspicious object should be carefully studied with binoculars.

(f) The observer must make full use of his previous knowledge of the zone. Dispositions, invisible in themselves, may be revealed by a change in appearance of some object or area, which may be due either to the activity of the enemy or to an alteration in the light.

(g) Enemy positions will often be revealed by movement in an area. Such movement will usually be of a trivial nature as, for example, the adjustment of camouflage or a flash of light reflected from binoculars, and will rarely be visible to the naked eyes. It will often only be detected by careful observation with binoculars of an area to which attention has previously been drawn.

(h) It is often difficult to recognize objects, familiar in themselves, because of the scale at which they appear, especially at long range or in mountainous country. For example, an anti-tank gun in the open at a long range appears surprisingly small. If there is a house or some familiar object in the area in which the anti-tank gun is suspected to be, size can be readily estimated, in relation to a door or a window of the house.

Reporting and recording information

14. *(a)* Where there is considerable activity, it will not be practicable to report all incidents as they occur. Information likely to be of immediate value must be reported without delay, and other information must be recorded and reported at intervals as ordered.

(b) Negative information may be most helpful; for example, that the enemy are not holding a particular place on the front.

(c) Reports must be accurate. Vague reports must be avoided: "Enemy tanks seen on my front" does not give the number, time and place seen, nor what they were doing.

(d) Once an event has been reported, the information must be followed up. Higher HQ will always wish to know what has happened to the enemy once they have been reported, even if they have stayed still and done nothing at all.

(e) Reports should always include:—

(i) *The time* of the event: there is always some delay between an event occurring and the time news of it reaches various HQ.

(ii) *The place* where the event happened including the grid reference.

(iii) *The source* of the information: some reports are consistently more reliable than others. Reports from civilians and sometimes from other troops may be unreliable and have to be judged on their merits.

(iv) *The action*, if any, which the sender is taking as a result of the information obtained.

(f) All information obtained should be recorded in an OP log, an example of which is given at Appendix F.

The OP in Internal Security operations

15. Surveillance work under IS conditions requires special techniques and an imaginative approach by those responsible for manning OPs. In Cyprus and Malaya the terrorist did not always wear uniform nor did he always carry a weapon, and the Cypriot peasant tilling his plot or the Malayan rubber tapper often turned out to be a terrorist in disguise or a terrorist helper.

16. The commander therefore requires a "Behaviour Pattern" covering all civilians and military personnel in the area for which he is responsible. To achieve this he will organize small OPs

throughout his area. The soldiers manning them need to be camouflaged and carefully concealed. On some occasions two men lying up undetected may achieve the required results.

17. It will be difficult to remain undected for more than 24 hours in an area inhabited by civilians, and as soon as an OP has been detected it must move.

Section 53.—RADAR AND INFRA-RED DEVICES

"It is ill to drive black hogs in the dark."

English proverb

Short-range radar

18. This set, to be used by the reconnaissance platoon, detects moving targets and identifies them by distinctive sounds heard by the operator. The scale of issue is four sets for the platoon. It will pick up moving targets and will give identification, range and bearing to those targets. The set is a two-man load of approximately 20 lbs. each man. It is not difficult to operate and may only require a very few hours of instruction to familiarize the average soldier with its operation. Much experience, however, will be required in identifying the sounds made by different targets.

Patrol radar

19. The scale is eight per battalion, held centrally as a Commanding Officer's pool. The approximate weight including power supply is 15-25 lbs. It is simple to operate, man-portable and battery powered. It gives similar target data as the short-range radar described above.

Limitations

20. Both the above sets operate only on the line of sight, observer to target: they cannot see round corners. Radar sets will not distinguish between friend and foe.

Use of radar

21. In poor visibility by day, radar may produce information for the commander quicker than the eye or ear. At night radar may become the eyes and ears of the Infantry, considerably extending their range.

Radar in Internal Security operations

22. Patrols can use radar to cover exits from villages. Ambushes can use the patrol radar to give early warning of the enemy's

approach. Both types of radar can be used in a cordon. They can cover large stretches of ground and enable troops to be held in reserve and act on the information given by the radar sets.

Radar in nuclear operations

23. The short-range radar will obtain information about areas forward of the main battalion defended zone.

24. The short-range radar will also cover the gaps between companies and on the flanks of the battalion.

25. The patrol radar will be used by the forward companies in conjunction with short-range radar to assist in watching the obstacle zone and the gaps between sections and platoons.

Infra-red devices

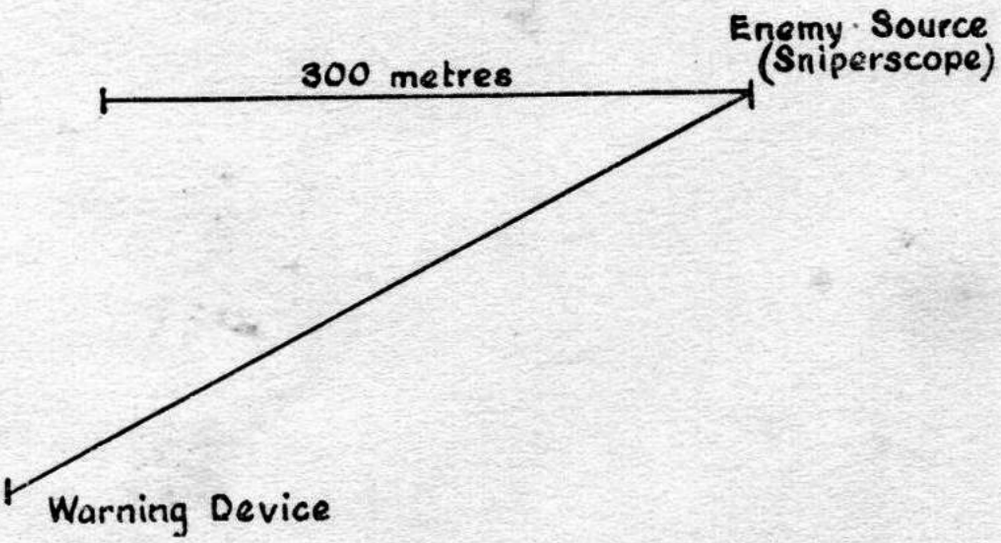
26. There are two groups of infra-red devices, the active group and the passive group.

Active group

27. The active group consists of sighting systems which give a firer the ability to identify and engage accurately a point target, and infra-red viewers which assist the user to pick up and identify such targets.

28, One of the Infantry sighting systems will be the sniperscope which is an infra-red sight with its own scource. It can be attached to the service rifle. It is hoped that it will be adaptable to the GPMG. The range is 150-250 metres.

29. Surveillance equipment for pin-pointing a target consists of infra-red binoculars and long-range viewers, both still in the experimental stages.



Note:—Infra-red devices also have the line of sight limitation.

FIG. 57.—Infra red.

Passive group

30. The passive group consists of devices which are the counter-measures to the active group. They are infra-red warning devices and will give warning when the enemy is using infra-red devices against our own troops.

31. The infra-red warning devices may detect an enemy infra-red source at a greater distance than the effective range of that source. Some devices will detect a source at twice the effective range of the source. Others will detect them at four times the range.

CHAPTER XIV

DEFENCE IN NON-NUCLEAR WAR

SECTION 54.—INTRODUCTION

Scope

1. This chapter deals primarily with planning the defence in operations where there is no foreseeable nuclear threat. When such a threat exists, defensive planning at battalion level requires considerable adjustment.

Definitions

2. *(a) Defended post:* a position held by a small sub-unit such as an Infantry section. Posts are grouped together in mutual support to form a defended locality.

(b) Defended locality: an area of ground organized for all-round defence by a platoon or company. The general line of the foremost defended localities is known as the line of Forward Defence Localities (FDLs).

(c) Defended area: an area of operational responsibility containing a group of localities organized in depth, eg, a battalion area.

(d) Sectors: a defensive position is divided into brigade and divisional sectors.

(e) Area of responsibility: the ground allotted to a unit or sub-unit on which it will plan and fight its battle. It is designated on the ground by boundaries.

(f) Covering troops: a mobile force whose aim is to delay the enemy from making contact with the main defensive position and to provide information.

(g) Screen: a force placed out in front and on the open flanks of the main defensive position to:—

(i) Prevent enemy observation and reconnaissance of the main position.

(ii) Give protection during the preparation of the position and give warning of the enemy's approach.

(iii) Hit the enemy as far out as possible to make him deploy early. A screen is always employed, whether covering troops are out or not.

(h) Forward Edge of the Battle Area: the general line of our own troops, excluding patrols, nearest to the enemy.

(j) *Vital ground:* ground, the capture of which by the attacker will render the defender incapable of fighting a successful defensive battle in that sector. If there is an area of vital ground in the divisional sector, the divisional commander must dispose his brigades to prevent the enemy from seizing it, and must so conduct the defensive battle that any threat to it is held and, if necessary, destroyed by counter-attack. Considerations of ground vital to the conduct of the battle seldom enter into the plans of commanders below divisional level. Brigade and battalion commanders will, within the orders given them by their superiors, be influenced by what is good tactical ground on which to fight the defensive battle.

(k) *Mutual support:* the defended posts or defended positions within a locality are said to be mutually supporting when they are so sited that an enemy assaulting any one of them will come under direct small arms fire from at least one other at the same time.

(l) *Deliberate defence:* a deliberate defensive position is one selected and prepared out of contact with the enemy. There should be time for detailed reconnaissance and planning on chosen ground and for construction and concealment of positions without enemy ground interference.

(m) *Hasty defence:* in the worst case, defence will be built up under threat of, or in the face of, the enemy. It may not be possible to choose the best ground. Such a defence may later become deliberate. In this case it may be necessary to replan and re-site on more suitable ground.

(n) *Deliberate counter-attack:* a planned and co-ordinated attack usually organized by a formation commander, employing his reserves. It will normally be launched after the situation has stablilized.

(o) *Local counter-attack:* an attack organized by unit or possibly by sub-unit commanders to destroy local enemy forces which have penetrated or threaten to penetrate into their defensive positions. It will normally be timed to take place before the enemy can reorganize.

(p) *Counter-penetration:* the halting and containing of enemy forces which have penetrated between or overrun forward defended localities. This may be undertaken by reserves or any forces not committed.

Aim of defensive operations

3. The aim of defensive operations is to hold off the enemy whilst preparing a counter-offensive by which to defeat him. Defence is therefore the prelude to offensive operations and must be regarded as temporary. It will vary between deliberate defence, prepared when out of contact with the enemy, and hasty defence whilst in contact.

4. All defence must be aggressive to retain the initiative and harass the enemy. It is also necessary to be aggressive to maintain morale.

5. The basic principles on which all defence depends are:—

(a) Ground of tactical importance to the defence must be denied to the enemy.

(b) Localities to be:—

(i) Sited in depth.

(ii) Organized for all-round defence.

(iii) Mutually supporting.

(iv) Concealed.

(c) Counter-attack plans must be made.

(d) Communications must be good.

(e) Administration must be carefully planned.

Depth

6. This is necessary:—

(a) To prevent the enemy gaining information about the main defence position when preparing an attack.

(b) To surprise the attacker.

(c) To destroy momentum after the attack has been launched.

(d) To localize penetration so that it can be counter-attacked by concentrated fire and movement.

7. Commanders at all levels are often, in practice, given frontages wider than they would like to hold. It is especially important in these circumstances to resist the temptation to sacrifice depth in the defensive position. The wider the frontage is, the more likely is the enemy to effect penetration of some part of it. A position should ideally be at least as deep as it is wide.

The tank threat

8. This may be the biggest factor of all in the choice of ground for a defensive position.

All-round defence

9. A battalion commander will lay out his area to defeat attack from all likely enemy lines of approach. Sections, platoons and companies must be prepared to fight in any direction in an emergency although they will normally concentrate on the most likely task.

Mutual support

10. The ideal is that rifle companies within the battalion should be able to cover the front, flank or rear of neighbouring companies with small arms fire. Where distances or ground configuration make this impossible, an interlock of anti-tank and machine gun fire must be aimed at. Any intervening gaps must be kept under surveillance so that artillery and mortar fire can be brought down when required.

11. It is always essential for platoons within a company defended locality to be mutually supporting and capable of all-round defence.

Concealment from the air

12. The overall plan for concealment from air observation will be laid down by the formation. At battalion level this will be interpreted to cover such aspects as track discipline, use of roads, movement by day, etc.

13. Although concealment may not always be proof against modern cameras, it offers valuable protection against visual air observation and detection by ground attack aircraft. Against an enemy holding air superiority, little movement or digging will be possible by day except under cover.

Concealment from the ground

14. Concealment from ground observation offers both defensive and offensive advantages. Localities will often be sited on reverse slopes. Concealment should not be wholly sacrificed to fields of fire. The minimum field of fire for a sub-unit's primary task is 100 metres; 250 metres may be adequate for most other purposes.

Counter-attacks

15. A counter-attack may vary from a quick action by the reserve section of a platoon to a very deliberate counter-attack by a reserve formation. Counter-attack plans will always be made and practised at all levels of command. They are of two types:—

(a) Local—organized by the platoon, company or battalion being attacked.

(b) *Deliberate*—organized by the higher unit or formation from its reserve.

16. Before moving reserves from their defensive positions and committing them in a counter-attack role, certain factors must be considered by the commander at the time. Some of these factors are:—

(a) Whether or not the ground lost is of tactical importance.
(b) The information available on the progress of the enemy attack.
(c) The strength of the enemy attack, the degree of success it has attained and the size of the counter-attack force.

17. Counter-attacks below company strength will be exceptional.

Domination of ground between opposing forces

18. It is axiomatic that a thoroughly aggressive control over No Man's Land will always be maintained by night and day. Failure to achieve this is indicative of loss of morale and offensive spirit. Domination is established as follows:—

(a) *By day:* the enemy will be hit as hard and as far out as possible. This is primarily an artillery and tank task but Infantry patrols may also have a part to play. The best possible OPs must be available for the control of this fire.

(b) *By night:* the ground on the battalion's front and flanks must be dominated more directly than by day to prevent the enemy from securing valuable information about our position. This can only be done by patrols.

Artillery tasks

19. The overall aim of the artillery in the defence is to provide close support for our own troops, and in conjunction with other arms to prevent the enemy from attacking, over-running and remaining on our own defended position. The different types of artillery support which are used are:—

(a) Harassing fire.
(b) Defensive fire, both close and in depth.
(c) Counter-bombardment.
(d) Counter-attack fire plan.

Level of command of artillery

20. In general, command of artillery should be exercised at the highest level at which the fire of the guns concerned can be

co-ordinated. The level at which this can be done will depend largely on the range of the guns and equipment and the area to be covered. Artillery is used to the best advantage when the fire of as many units as possible can be co-ordinated and concentrated, when required, so as to give the greatest possible weight of fire to any particular part of the battlefield. This weight of fire, when applied at the right time and place, will do much to break up an attack before it reaches defended localities. However, the Infantry will only get full advantage of this fire if they are sufficiently alert by day and night to give timely warning of an enemy approach and also if they secure the OPs which the artillery will need.

Good communications

21. There are normally at least two radio links from a defended locality:—

(a) The battalion and/or company net: the latter includes mortar section communications from OP to base-plate positions.

(b) The artillery net from the battery commander to OPs.

22. In addition, line must be laid and duplicated but owing to vulnerability to artillery fire and tank tracks, line maintenance must be planned for. Make use of line to relieve radio and conserve batteries.

Obstacles

23. When planning the layout of the battalion, natural and artificial obstacles should be considered. They lose their effectiveness unless covered by observed fire. It may not always be possible to watch the full extent of a river line but man-made obstacles such as wire and mines will be wasted if they are not covered by observed fire. Obstacles can be used to force or guide the enemy into a chosen killing ground from where he can be held and hit with all the fire available to the defence.

The nuclear threat

24. Nuclear weapons may be used in any future war. This threat gives rise to problems both in regard to the tactics and the deployment to be used in taking up a defensive position.

(a) Tactics

(i) In nuclear war dispersion is imposed on the defender by the threat of nuclear destruction. Such dispersion is only tactically acceptable if the defender plans to use nuclear weapons himself and thus impose like dispersion of the

enemy. In non-nuclear war the defender relies on the fullest co-ordinated use of his conventional weapons to destroy the enemy. In order to do this he sights his defended localities to be mutually supporting. The range of Infantry weapons is relatively short and a measure of concentration is forced upon the defender if he is to achieve this mutual support.

(ii) In nuclear war ground is chosen by the defender to site himself where he can observe the enemy advance and where the natural characteristics of the ground exploited by the defending troops effectively canalize the enemy and force him to offer worthwhile nuclear targets. In non-nuclear war ground must be held. Possession of the vital ground is then the key to winning the battle.

(b) Deployment

(i) The tactical considerations in nuclear and non-nuclear war are clearly in direct conflict. When faced with adopting a defensive position in a war which has hitherto been non-nuclear but over which the nuclear threat hangs, a defender is tempted to compromise by extending the distance between defended localities to the extreme range of their conventional weapons so that their fire is barely interlocking. This is fatal. The resulting deployment is inevitably too close and vulnerable if nuclear weapons are used and, simultaneously, too dispersed, if they are not used, to provide the mutual support necessary to prevent the defended localities being defeated in detail by conventional attack.

(ii) In non-nuclear war under a nuclear threat a defender must be assured of the immediate use of his own nuclear fire against enemy assault before he can risk dispersing his forces in a manner suitable for nuclear defence. If such assurance is not forthcoming, non-nuclear defensive positions must be adopted which control the vital ground and ensure the fullest possible mutual support.

SECTION 55.—PLANNING THE DEFENCE IN NON-NUCLEAR WAR

25. When a battalion commander starts to lay out a deliberate defensive position, there will normally be both covering troops and a screen on the ground in front of him. Commanders preparing the main position, from section commanders upwards, will at all times be responsible for their own protection, regardless of whether there is a screen out or not.

Covering troops

26. Tasks are:—

(a) To observe and report the enemy's approach.

(b) To delay the enemy and so gain time for the preparation of the main position.

(c) To deny the enemy certain ground from which he can get observation onto the main position.

(d) To hamper enemy patrolling and so interfere with his preparation for the main attack.

27. The composition of the covering troops will depend upon the degree of importance of the tasks given in paragraph 26 above. It will vary from squadrons provided by the corps armoured car regiment to a force, containing Infantry, artillery, engineers and tanks, designed to fight a serious delaying action if necessary. Covering troops will be controlled by the higher formation commanders and may operate as far as ten miles in front of the main position.

Screens

28.*(a)* Screens will normally be provided from brigade resources and are usually formed from reserve elements of the brigade, so as not to interfere unduly with the preparation of the main defensive position.

(b) They must be sufficiently far out in front of the main position to prevent enemy observation and reconnaissance of it: they must also be strong enough to delay the enemy while the main position is being prepared.

(c) They will be mobile and will contain elements from the various arms available to the brigade commander.

29. When planning a defensive position the primary factor to keep constantly in mind is the task allotted. Other factors include:—

(a) Ground, in particular the likely enemy approaches.

(b) The application of fire to ground.

(c) The availability of troops to ground.

(d) Concealment.

(e) The available anti-tank resources.

(f) Control of the gaps where the formation frontage is unduly large.

Sequence of events

30. At the battalion level, the sequence of events in planning the main defensive position will be as follows:—

(a) Appreciation by the battalion commander to decide what ground he must hold in order to carry out the task given him by the brigade commander.

(b) Consideration of how this ground is to be held, bearing in mind the outline of the brigade artillery and anti-tank plan and the general line of FDLs given him by the brigade commander.

(c) Reconnaisance by the battalion commander and his reconnaissance group. This should include a reconnaissance from the enemy point of view and an appreciation of his most likely FUPs and approaches for both Infantry and tanks.

(d) Issue of preliminary orders by the battalion commander.

(e) Reconnaissance by company and support weapon commanders.

(f) Co-ordination by battalion commander as a result of more detailed personal reconnaissance, liaison with flank commanders and further reconnaissance by his subordinate commanders, followed by the issue of final orders.

(g) Issue of company orders.

(h) Arrival of troops on the ground.

(j) Issue of platoon orders.

Fire plan

31. A carefully co-ordinated fire plan involving not only artillery but tanks and Infantry weapons will be the main means of weakening the enemy attack before and during the assault stage and destroying him during the counter-attack phase. Each weapon must be used to its best advantage and this can be done if co-ordination takes place at every level upwards. The aim of defensive fire is to enable a specified weight of fire to be brought

down quickly on the enemy during his preparation for attack and during his assault.

(a) Artillery

(i) The battalion commander will select his DF tasks in consultation with the battery commander of his direct support field battery; the number of DFs will vary with the ground and dispersion but they should be kept to a minimum consistent with producing adequate support.

(ii) In non-nuclear war where guns may have to cover most of the divisional area, a yardstick for the number of close DFs for a battalion would be eight. (In nuclear war where there is more movement and wide dispersion, and guns may often only cover one brigade, far more DF tasks are likely to be required).

(iii) The battalion commander selects the close DF covering the most likely line of enemy approach as the DF (SOS) task. Guns allotted to fire on a DF (SOS) task are laid on that task when not engaged on another target, therefore the number of DF (SOS) tasks is governed by the number of fire units in direct support or at priority call to the battalion. A fire unit is normally accepted as a field battery or medium section.

(b) Mortars: assistance in the fire plan is the main role of the mortars in defence, when their fire can be directed on those areas which the artillery cannot reach owing to crest clearance. Company commanders will select their own DF tasks, including (SOS), but co-ordination of these is required in order that gaps are not overlooked, and arcs of fire of mortar fire units are arranged so as to give maximum protection to the defended localities. This co-ordination will be carried out by a nominated support platoon commander, who may also be detailed to command a platoon, or two platoons of four mortars where these are formed by grouping sections together.

(c) GPMGs (SF): tasks of the GPMG in the sustained fire role will be:—

(i) Covering likely lines of enemy approach.

(ii) Covering the front of the company area, and providing flank protection of the company locality.

(iii) Supporting fire between companies.

(iv) DF tasks, either company and battalion.

Anti-tank defence

32. The anti-tank defence will be based on:—

(a) The higher formation anti-tank plan: the principles which govern the layout are concealment, mutual support, depth and all-round defence. Tanks will normally provide the basis of the anti-tank force although medium artillery firing high explosive can also be used.

(b) The battalion anti-tank defence plan: all anti-tank weapons will be sited in depth within a defended locality, defiladed, and concealed. Anti-tank defence is co-ordinated at the highest possible level. Thus the battalion anti-tank defence layout will tie in with the overall brigade layout, co-ordinated by an officer deputed by the brigade commander. Similarly the company anti-tank defence layout will tie in with the overall battalion layout and be co-ordinated by an officer deputed by the battalion commander.

33. The introduction of anti-tank guided weapons (GW) and now shoulder controlled anti-tank weapons will make Infantry increasingly tank proof and will help to release tanks themselves from the static anti-tank role.

Tanks

34. The principle role of tanks will be to prevent penetration of the position and to counter-attack tactical ground in co-operation with Infantry allotted for this purpose. There may be more than one counter-attack plan, in which case each will have to be rehearsed by Infantry and tanks working in co-operation. Tanks may also be used to assist in the anti-tank defence but not to the detriment of the counter-attack role nor in such a way that their mobility is not used to the full.

Air force

35. The primary tasks of the air force in defence will be to fight for general air parity and for short periods to achieve local air superiority. Normally, therefore, only a limited number of sorties will be available for direct support of the local land battle, except possibly in an emergency.

Obstacles

36. *(a)* The best and most economical obstacles are natural ones which can be further improved if time, effort and stores are available. Gaps may be filled with mines or other suitable artificial devices.

(b) Mines

Terminology is now largely standardized within NATO, as also are many points of doctrine and technique. There are five types of minefields:—

Protective: to provide local close-in protection for a unit; sited by the unit and therefore the main type of concern to an Infantry battalion.

Defensive: to prevent enemy penetration between units: laid as part of the formation co-ordinated defence plan.

Barrier: to stop enemy attacks in selected areas, such as flanks, or to guide those attacks into areas of our own choosing; laid normally by engineers as part of the higher formation plan.

Nuisance: to delay or disorganize the enemy in areas he is likely to use which are not open to observation or covered by fire; only used if authorized by higher formation commander and then laid by engineers or specially trained Infantry; this is the only type of minefield which is not marked.

Phony: to bluff the enemy; again only laid if specially ordered and then sited and marked, etc, by those responsible for the type of minefield it represents; dummy mines may be included in this field but never live mines: can be used for gaps between minefields.

(c) Minefields may be anti-tank or anti-personnel, depending on their primary purpose. Minefields containing both types of mine are known as mixed minefields.

(d) Infantry will normally lay mines using hand methods and site them in relation to positions from which covering fire can be provided. It is important that minefields are sited so as not to disclose the pattern of defence nor to interfere with counter-attack plans. If they are to impose the maximum delay on the enemy, great care must be taken to secure maximum concealment, and hence surprise, from ground and air. Whenever possible, they should be laid in depth at a density of one mine per yard of front. All mines laid must be accurately recorded.

(e) Wire: the principal purpose of wire is to prevent Infantry positions being rushed under cover of darkness or smoke before the full weight of the defensive fire plan can be brought to bear. Wire can be used defensively and tactically, like minefields. The main disadvantage of wire is that unless concealed by weeds or hedges it is liable to give away the locations of a position, particularly to air observation. On the other hand, when frontages are broad and enemy Infantry almost innumerable, wire helps to prevent Infantry localities from being overrun. Current policy is to teach the family of catwire fences and also the low wire entanglement, but these should not be regarded in any way as invincible. Wire should be used ideally in mass, and in depth. In this way penetration by the Bangalore torpedo type of attack is made much more difficult.

(f) Cover by fire: all artificial and as many natural obstacles as possible must be covered by fire to prevent the enemy reconnoitring them and crossing them unopposed.

Section 56.—CONDUCT OF THE DEFENCE IN NON-NUCLEAR WAR

Stages

37. The conduct of the defence is best considered in four stages, as follows:—

(a) The occupation of the position.

(b) The preparatory stage, before the enemy closes up to the position.

(c) The enemy assault.

(d) The counter-attack, if and when the enemy assault has achieved some success but has been held.

Occupation

38. *(a)* It is only after his troops are on the ground that the commander can finally co-ordinate his defensive layout. This requires his personal inspection and checking of:—

(i) Company positions including the siting of support weapons, co-ordination of anti-tank layout and of GPMG (SF) tasks.

(ii) Artillery and mortar tasks including, where possible, their registration.

(iii) Obstacles and their related covering fire tasks.
(iv) All administrative arrangements.
(v) Communications.

(b) On occupying the position, orders on movement, camouflage and concealment must be immediately and strictly enforced.

(c) Commanders at all levels must ensure that the plan for the defence of the position as a whole, and of their locality in particular, is thoroughly understood by all ranks. Only by knowing what fire is available to break up an attack on his locality will the soldier have complete confidence in his ability to fight it out successfully.

Preparation

39. Throughout this stage, work on improving and strengthening the positions will continue. At the same time, by the aggressive use of patrols, snipers and harassing fire:—

(a) Morale will be maintained.

(b) The enemy will be prevented from reconnoitring the position.

(c) His plans for attack will be disrupted.

(d) Information will be obtained of the enemy's intention.

(e) The commander will retain the initiative.

The enemy assault

40.*(a)* The enemy may assault by day or night. He may use stealth, smoke or a preliminary bombardment. Whatever his method and preliminary activities, OPs patrols and warning devices will disclose his intentions. His attack will then be broken up by:—

(i) Artillery and mortar fire.
(ii) Machine gun and anti-tank fire in conjunction with mines and wire.
(iii) Small arms fire.
(iv) Grenades and the bayonet.

(b) Fire control and fire discipline will be of great importance in achieving the maximum effect from this defensive fire.

(c) The soldiers must be instilled with a determination to stand fast and fight it out at all costs. They will not leave their positions during an attack except:—

(i) To engage the enemy in hand-to-hand fighting.

(ii) To fill a gap in the all-round defence.

(iii) To make an immediate local counter-attack.

(d) Even if the enemy over-run some localities and penetrate into the position, the remaining localities with their capability of all-round defence will continue to hold out.

The counter-attack

41. Reserves of Infantry and tanks at battalion and brigade level will be positioned and prepared to take instant action in conjunction with a pre-planned fire plan to drive out the enemy by immediate local counter-attack. For this purpose, troops of tanks may be located in the battalion area.

CHAPTER XV

NUCLEAR DEFENCE IN CONJUNCTION WITH A MAJOR OBSTACLE

SECTION 57.—TACTICAL CONCEPT

Obstacle

1. This chapter deals with the deployment of a forward brigade group in conjunction with a major river obstacle.

Enemy tactics

2. The concept is related to the following broad pattern of enemy tactics:—

(a) The enemy will first make his side of the obstacle secure, thereby eliminating our OPs and facilitating his own reconnaissance. During this stage he will try bounce crossings and immediately exploit any success gained.

(b) During the next stage the enemy will mount deliberate assault crossings using amphibious and snorkel tanks, amphibious APCs and amphibious load carriers. This assault will almost certainly be supported by both nuclear and conventional fire and will almost certainly take place at night. The fire support will coincide with the arrival of the assaulting force from dispersed areas in depth.

(c) The enemy's assault will be planned on a wide front with objectives in depth. Leading elements are likely to by-pass opposition and wherever crossings are successful they will be exploited.

(d) Lodgement areas free from small arms fire and from observed artillery fire will be cleared by troops detailed for this task. In these areas enemy engineer units will construct ferries and bridges for the crossing of heavy tanks and follow-up formations.

(e) The enemy's overall aim will be to drive deep into our positions, without delay so that no nuclear targets are offered to us, to disrupt our communication centres and HQs and destroy our nuclear launching sites and weapons. The latter tasks may be given to airborne forces.

The basis of the defence

3. It must be realized that the defence is based on making the maximum use of the major obstacle and that the whole battle, and not just one particular part of it, is the obstacle battle.

4. The aim in all phases will be to halt the advance of the enemy and to destroy him.

5. The major obstacle forms the basis on which the whole battle will be fought and the divisional commander, in making his appreciation, will have uppermost in his mind the importance of improving its effectiveness to the greatest possible extent and of allotting as many nuclear warheads as possible to this phase of the battle. He will further have to satisfy himself that arrangements for reporting the progress of the enemy up to and in the obstacle are adequate.

SECTION 58.—FORWARD BRIGADE GROUP DEPLOYMENT

Tasks

6. The brigade group will have the overall tasks of:—

(a) Providing the information and intelligence from which nuclear strikes and movement of reserves may be planned.

(b) Eliminating minor bounce crossings as necessary.

(c) Containing main enemy thrusts which have not been stopped by nuclear fire, thus acquiring further nuclear targets and creating conditions for a successful corps counter-stroke.

Points for decision

7. In the course of his planning, the brigade group commander will have to decide:—

(a) The amount of reliance he can place on the major obstacle to disrupt and halt major enemy thrusts.

(b) The general line on which he will locate his most forward surveillance resources.

(c) The general line beyond which major enemy thrusts must not be allowed to pass.

(d) Likely nuclear target areas.

(e) From a consideration of the foregoing and other relevant factors, how to make the best use of the forces at his disposal and allocate them to the various tasks.

8. The requirements of ground, surveillance and likely nuclear target areas may often confiict and the commander must weigh up their relative importance before making his final plan.

Nuclear targets

9. The selection of nuclear targets at this stage must be done in such a way as not to endanger our own troops or cause them to be moved or withdrawn before such targets are engaged.

10. The brigade group commander advised by the commander of the close support artillery regiment will choose and number the possible nuclear targets in his area of responsibility. The purpose of these numbered targets is to enable the artillery to determine where they must deploy their delivery means. These details will be made known to battle group commanders. Over and above these numbered targets opportunity targets can be engaged with equal speed by nuclear missiles, if they arise and subject to the availability and response times of the supporting nuclear weapons.

Conventional artillery support

11. Conventional artillery fire support will always be available. It will assist at all stages in the disruption of the enemy advance, thus helping in the acquisition of nuclear targets and the exploitation of nuclear strikes. Fire support is most effective when conventional artillery support and nuclear fire are complementary to each other.

Engineer tasks

12. Engineer units will have as their priority tasks the development and improvement of the obstacle. This will involve substantial work in the shape of minefields, demolitions, obstacles in the water and the destruction and/or mining of points of entry and exit.

SECTION 59.—FORWARD BATTLE GROUP DEPLOYMENT

Forces to be found

13. Forward battle groups will be deployed to carry out the tasks listed in paragraph 6 above and will require:—

(a) A surveillance force: for static observation and, where appropriate, patrolling.

(b) A link force: for guarding approaches from the obstacle and/or for delaying actions against major enemy thrusts.

(c) A reserve: for eliminating minor crossings and/or for containing major thrusts.

Surveillance force

14. It is necessary to organize surveillance to cover the whole length of the obstacle area across the battle group frontage and also in depth. To do this on a front of up to 8,000 metres will probably need 20 or more posts or OPs. This must be the first priority for the use of manpower available to the battle group commander.

Link force

15. The battle group commander must organize a force to operate between his surveillance force and his reserve which will impede the enemy's progress and also keep him informed of the detailed progress of major thrusts. Without this information the battle group commander cannot decide exactly how and when to commit his reserves. If he commits them prematurely against a minor crossing he may be unable to contain a major thrust taking place elsewhere in his area. On the other hand if no major thrust is being made and he fails to eliminate a minor crossing, this may itself build up into a major thrust.

Reserve

16. This must be as substantial an Infantry/tank force as can be made available and must be held back from the obstacle in concealed positions until committed. It must reconnoitre its likely tasks and, where appropriate, prepare positions from which thrusts will be engaged.

17. The battle group commander must allocate his available forces so that these inter-related tasks can be carried out. In particular there must be a proper balance between the surveillance force and the reserve. Link tasks will usually take a lower priority than surveillance and the reserve.

18. The battle group commander's decision on the allocation of troops to these three tasks is extremely important and unless he achieves the proper balance between them the enemy may:—

(a) Penetrate the surveillance line without being detected.

(b) Quickly build up minor crossings into major thrusts.

(c) Alter the direction of his thrusts to avoid the chosen containing positions.

(d) Overcome the containing positions quickly by conventional assault before the elapse of the nuclear response time.

In any one of these ways the enemy may achieve his aim and avoid offering us the nuclear targets we must have.

19. When preparing for the deployment of his battle group, the battle group commander must plan surveillance in depth to cover the whole of his area of responsibility. This implies that all surveillance elements deployed from rear to front as far as possible be covered by line of signt and within radar range of other elements in depth and to the flanks. Thus if the enemy destroys surveillance elements in any one area, his subsequent movements to exploit from that area would be in line of sight of other surveillance elements and the battle group commander would be able to take appropriate action. A battle group commander will have the following surveillance potential within his battle group:—

(a) A pool of eight patrol radar sets in the Infantry battalion.

(b) Four short-range radar sets in the reconnaisance platoon of the Infantry battalion.

(c) Two MFCs per Infantry company.

(d) Three FOOs from the battery in direct support, each equipped with a short-range radar.

(e) Elements from the reconnaissance troop of the armoured regiment, if allotted.

20. Radar, combined with infra-red equipped listening or observation posts, must form the basis of all surveillance planning. Only these elements can compete with darkness and restricted visibility. By day these resources must be augmented by the use of artillery FOOs and mortar MFCs. Any corps, divisional or brigade OPs or artillery radar sited within the battle group area of responsibility must be considered as a bonus superimposed on its own resources. Their primary duty will be to relay information to their own commanders but the battle group commander should make every attempt to arrange means of direct communication to them from his own resources, which will enable him to share the information they send back.

21. The area immediately behind the obstacle will be particularly dangerous since the enemy is likely to put nuclear missiles down there before his assault crossings. The principles will therefore be that the troops deployed forward, who will inevitably be well dispersed, will rely on digging and concealment for protection, whilst the reserve will be held well back from the obstacle in concealed and dug positions until committed.

22. The area in which the containing battle will be planned to take place will be decided by the battle group commander as a result of the information he receives from his forward companies. It must be borne in mind that the deeper the enemy is allowed to penetrate and the wider the thrusts, the more difficult it will be to hold him up long enough to acquire and strike nuclear targets.

If too many troops are deployed close up to the obstacle, the battle group commander will have insufficient force available to him to contain enemy penetration for a period long enough to fire nuclear missiles.

23. Although the battle group commander must decide on where the final containing action will take place, it will be usual for the brigade group commander to have directed him on a line beyond which enemy thrusts must not be allowed to pass. This will be necessary as enemy penetration in the brigade area must be controlled laterally as well as in depth; in addition the brigade nuclear fire plan will be tied to the final containing positions decided on by the forward battle group commanders. Furthermore, the employment of the brigade reserve will be based on a series of counter-attacks task and/or containing positions which must be reconnoitred before the enemy's thrusts are known.

Surveillance over the obstacle

24. The primary task of the force deployed forward on the obstacle will be that of surveillance: the collection of information and its transmission to battle group HQ. This task will continue to be of great importance even when the enemy has crossed the obstacle and advanced into the battle group area. A secondary but still essential task for the force will be to engage the enemy by indirect fire whenever a suitable opportunity occurs.

25. When deciding the distribution and deployment of his troops the battle group commander must first consider the numbers and layout needed at night. He can then consider what adjustments he can make for the hours of daylight, bearing in mind the need for rest, concealment (including minimum movement) and dispersion.

26. The frontage to be covered and the need to limit the size of the force will often mean that either the whole front cannot be covered as fully as is desirable, or that posts must be manned by very few men (eg, half-sections). The latter course is undesirable and produces problems of command and control but it may be necessary. Such units as platoon HQs may sometimes have to act as posts as well as carrying out their normal functions in order to meet surveillance needs.

27. By day it may often be possible to carry out the task of surveillance over the obstacle from OPs sited on commanding ground overlooking it. OPs likely to be on this commanding ground will include artillery OPs, mortar OPs and possibly some elements of the link force located in their initial defensive positions. If this is possible, then troops forward on the obstacle itself can stand down and rest.

28. It is preferable for troops to remain in their posts on the obstacle by day rather than to move out to areas where more amenities might be available. Movement by day and night should be kept to an absolute minimum to give the enemy little opportunity for observation.

29. By estimating the number of posts necessary the Commanding Officer will be able to judge if any part of the forward company or companies can be made available to the screen.

30. If it is possible to carry out the task of surveillance with one company some special arrangements will be probably be necessary for the passage of intelligence to battle group HQ, as one company HQ is unlikely to be able to bear the work load forced upon it by having so many surveillance posts.

31. Communications within the surveillance force and from its HQ or HQs back to the battle group command post will be most important. All posts must be in radio communication to platoon HQs and radio may be supplemented by line, although there are drawbacks in using the latter. Provision of sufficient radio sets and sets with sufficient power to ensure communication from posts to platoon HQs and from platoon HQs to company HQ will be a problem. It may be necessary to withdraw some radio equipment from elements of the reserve to cater for this. The location of a post or a HQ is dictated by where it can observe but also by where its communications can work satisfactorily.

32. If any elements of the link forces are initially deployed close to or within the surveillance force area, not only can these elements be of great assistance in the surveillance over the obstacle but there is a case for putting them under the command of the surveillance force until such time as the enemy launches a successful crossing operation in strength.

33. The surveillance force must stay undetected for as long as possible. Camouflage must be of the highest possible standard and commanders of all posts must receive unmistakable orders about opening fire. They should only open direct fire if they are identified by the enemy and are under direct assault.

34. The need to engage the enemy's attempts to make minor crossings and to engage his main crossing operations later means that at least one, preferably two, FOOs and some MFCs must be allocated to the surveillance force.

35. Gaps created in the surveillance line either by a conventional or nuclear attack must be investigated by forward company commanders. If it is possible to re-establish surveillance, this will be done; in any case the battle group commander must be informed as he may be able to deploy radar to cover the gap.

Surveillance in depth

36. This requirement may be met by the reconnaissance platoon and elements of the reconnaissance troop of the armoured regiment, if available. These sub-units work best if allotted separate tasks and they keep their normal system of command and control. On the other hand it may be suitable for them to work together under one commander, eg, the reconnaissance platoon commander, or under command of the link force.

Reserve hides

37. The battle group commander will decide counter-attack tasks. He will also select the battle positions for use against major thrusts. In relation to these tasks and positions, he will allot general areas where reserves will initially be located, sometimes called "hides". In deciding on these areas he must strike a balance between the necessity for dispersion and the requirements of control.

38. Hides will be reconnoitred by squadrons/companies. A hide requires good access routes and concealment from air detection. Squadrons/companies must be prepared to defend their hides from attack by small parties of enemy who may have infiltrated through the forward troops. If it is suspected that the enemy has located a hide in which a force is concealed, that force must move to an alternative hide immediately. In certain circumstances it may be considered necessary for hides to be changed one in every twenty-four hours. But remember that movement invites detection.

39. The battle positions selected by the battle group commander for containing forces will also be reconnoitred and prepared by those forces. If time and the ability to camouflage permit, battle positions must be dug, wired and mined. If reconnaissance only is possible, it should include selection of section arcs of fire by platoon commanders and marking out of these arcs by section commanders. There will seldom be sufficient time for this task to be completely carried out and the primary requirement is that all ranks should be able to find their way quickly in the dark from every alternative hide to every battle position.

40. The battle group commander should lay down priorities of work in the hides and battle positions. Reserves will probably spend more time in their hides than elsewhere and the ability of air photography to pick out dug positions must be remembered. Each case must be treated on its merits.

The link force

41. After deciding his surveillance force and reserve the battle group commander must consider the force needed to guard

approaches from the obstacle and/or delay enemy major thrusts between the time they pass through the forward surveillance line and the time they reach the containing positions. Elements of the battle group which might be available for inclusion in this force are as follows:—

(a) The whole or part of the tank squadron.

(b) Some rifle platoons taken from companies in the reserve or forward surveillance force.

(c) Infantry anti-tank sections from support platoons. GW will be most suitable for this task.

(d) Elements of the armoured regimental reconnaissance troop and the Infantry battalion reconnaissance platoon, if not allotted independent roles for surveillance in depth or other tasks.

42. Whether any rifle platoons or anti-tank sections can be made available depends upon whether the battalion has three or four companies, whether one or two companies are deployed in the surveillance role, and the frontage to be covered. If a battalion is able to deploy two companies forward in the surveillance role it is more likely that one platoon from each of these companies and two anti-tank sections could be allotted to the link force.

43. If any part of the tank squadron is allocated to this force the squadron leader will normally be its commander.

44. The tasks given to the link force may include:—

(a) To guard approaches from the obstacle.

(b) To keep in close touch with and report the strength, direction and progress of all enemy thrusts which are penetrating the battle group area.

(c) If tanks and Infantry are available, to delay the enemy's advance as much as possible and try to canalize the enemy's thrusts according to the pattern required by the battle group commander.

45. An FOO and MFC, probably from the reserve, must be allotted to the link force to ensure that fire support is available.

46. The movement of the link force through the battle group area must be carefully co-ordinated with any movement of the reserve. In particular, if the reserve is committed to a containing battle, the arrival of the link force must be so arranged that it can be re-deployed to take part in this battle. To avoid confusion identification signals must be arranged between the link force and the reserve.

APCs

47.*(a) Forward surveillance force:* it is not envisaged that this force will move and even if it has to, it will probably be simpler for it to start on foot. APCs can therefore be grouped in platoon harbour areas and held well back in the battle group area.

(b) Link force and reserve: APCs may be needed at short notice and will be kept close to their sub-units.

Tank and anti-tank

48. It is unlikely that a battle group will include more than one squadron of tanks. It may often contain less. It will be essential to begin conventional destruction of enemy AFVs well forward, if possible while crossing the obstacle or debouching from it. This will affect both the tanks and anti-tank layout. The process of attrition on the enemy's superior numbers will be the result of the combined efforts of all anti-tank and nuclear weapons. As the enemy thrusts develop, so the degree of resistance, especially from anti-tank weapons, must increase to compel the enemy to deploy more forces in an attempt to find our flanks. This should, in turn, produce targets for our nuclear fire.

49. Some tanks should be positioned well forward to hit the enemy as soon as possible after debouching from the obstacle zone. Enough tanks must be kept for an effective reserve and the number which can be allotted to the link force will vary.

50. The disadvantages of allotting some tanks to the link force and the remainder to the reserve are that:—

(a) Command and control become difficult.

(b) Anything less than a complete squadron tends to be of insufficient strength to be effective in either role.

(c) These tanks which fight a delaying battle against a numerically stronger enemy, though they may survive to take part in the containing battle, will not be in a fully effective state to do so: tanks need time to replenish, crews will be very tired and some may have casualties.

51. Whether tanks are included in the link force or not, the reconnaissance troop of the armoured regiment will almost certainly be deployed in relation to the two forward battle groups, so that one can expect either two or three sections to be working in conjunction with an Infantry reconnaissance platoon on each forward battle group front in either the surveillance or link force roles.

52. The roles of the tanks which form part of the reserve are, in conjunction with the Infantry, to:—

(a) Counter-attack minor enemy crossings.

(b) Hold containing positions.

(c) Cover gaps between Infantry containing positions.

(d) Attack any enemy surviving after one of our own nuclear strikes in the battle group area.

Observation posts

53.*(a)* Usually there will be three artillery OPs from the direct support battery deployed in the battle group area.

(b) As artillery fire will be required on the obstacle and in support of the link force and reserve, artillery OPs are wanted with the surveillance force, the reserve and the link force.

(c) At least one OP must be deployed with the surveillance force and one with the reserve for planning purposes. The third OP can be deployed initially with the surveillance force but should join and move back with the link force to give it fire support and should finally be available for the containing battle, if and when that takes place.

(d) The shortage of artillery OPs for all these tasks, coupled with the fact that they may easily become casualties, emphasises the need for all Infantry officers and MFCs to be well practised in artillery target indication procedure.

Conventional artillery support

54. Conventional artillery support is necessary to the success of every phase of the battle. The aim of this support is to neutralize and harass the enemy whenever the opportunity occurs. It can be used to delay, canalize, or even stop the enemy advance. Conventional artillery will be particularly useful in close support of Infantry and tanks and in neutralizing targets too dispersed to warrant a nuclear strike. It will be necessary to dump ammunition at all planned gun positions before the battle.

DF tasks

55. In nuclear war there is more movement and wider dispersion than in conventional war. It follows, therefore, that in a nuclear defensive battle there will be a requirement for more DF tasks.

Nuclear fire planning

56. Nuclear fire planning is initiated at brigade group level. Battle group commanders may request nuclear strikes but it is at brigade group HQ that the target will be analysed and the decision taken whether or not, subject to the releasing authority's approval, to use a nuclear missile.

Mortar fire

57. Mortar fire will be required for the battle on the obstacle, by the link force and by the reserve. Central control of mortar fire will therefore be necessary. Two sections of mortars will probably be allotted initially to the surveillance force and the other one (or two if the battalion has four companies) will be allotted to the reserve but will be able to produce fire support for the link force, if required. Deployment of MFCs might be as follows:—

(a) Four MFCs with the surveillance force; they will have call on their own company mortars and any others allotted, to a stated limit of ammunition expenditure.

(b) Two or four MFCs to remain with the reserve; the number depending on whether the battalion has three or four companies.

(c) Two MFCs from the surveillance force to join the link force once the enemy crosses the obstacle in strength. These MFCs will have call on the mortar sections of the reserve within stated ammunition limitations.

58. As the battle progresses, the mortar sections of the surveillance force will move back under orders of the mortar officer to join the mortars of the reserve. MFCs of the surveillance force, other than any withdrawn earlier to the link force, will probably have to stay forward.

59. The mortar officer will be located at the battalion command post near the battery commander, under whose orders he may allow or veto calls for mortar fire support.

Field defences

60. On the nuclear battlefield digging is more important than ever: the protection afforded by an open slit trench is greater than that offered by a closed-down APC or tank. In the preparation of field defences the emphasis must be on:—

(a) Speed of excavation, making full use of machines or explosives; this will substantially cut the time taken to get below ground.

(b) Simplicity in design.

(c) An absolute minimum of lightweight, small volume, field defence stores which will be carried on organic Infantry battalion vehicles, or even on the men.

61. Concealment which is so important may be achieved by direct camouflage or by deceptive means. The priority of work on hides or containing positions will be ordered by the battle group commander. In hides emphasis will be on protection from nuclear effects and on the local protection of hide areas from small parties of enemy; in containing positions, emphasis will be on the ability to fight from them against conventional attack.

Engineers

62. The obstacle plan will be made initially at army group level, and at divisional level engineers will work under control of the CRE, who may be allotted up to two field squadrons from corps resources to work in the divisional area.

63. Engineer effort will have the following priorities:—

(a) To deny the use of possible bridge, ferry, and amphibious sites on the river banks to the enemy. This will include the preparation of existing bridges across the river for demolition.

(b) Making an obstacle belt 10,000–15,000 metres deep on either the far bank, or home bank, or astride the river, depending on the ground. This will be done by improving natural obstacles by means of mines, demolitions and route denial. The obstacle plan in this zone will be designed to separate tracked vehicles from wheeled vehicles, and to canalize the enemy, thereby forcing him to concentrate and present nuclear targets.

(c) Work in depth on the home bank and in forward battle group areas with a view to canalizing the enemy to places where he can be destroyed by nuclear weapons, and also to reconnoitre and improve as necessary, routes for the tactical movement of the reserve.

64. When the affiliated field troop has completed its primary tasks, it may become available to the battle group commander. Should the field troop remain in the battle group area, time must be allowed for the construction of its own hides. Likely tasks are the improvement of hide exits and approaches, and the construction of command posts and medical facilities.

65. Because of the greatly increased areas of responsibility in the nuclear defensive battle, engineer resources will be more stretched than under non-nuclear conditions. This means that Infantry battalions must be prepared to carry out or help with many of the tasks usually done by engineers.

Illumination

66. In defence the battle group commander must aim to nullify the effects of darkness and he should plan to illuminate the area to help him in obtaining information and in engaging the enemy. This will enable him particularly to use his supporting fire effectively. However, it is important that he should not give away the location of his own forces and he should therefore plan to use indirect means of illumination.

67. Infra-red illumination used in conjunction with appropriate viewing devices may be used to facilitate movement, control and the firing of weapons at night. This form of illumination is easily detectable, the source being obvious beyond the range of the illuminating beam, and must therefore be used with care.

Battle group HQ

68. The battle group command post must be located away from likely enemy thrust lines and must be sited where it can be in communication with all elements of the battle group. Protection and good communications are the factors governing its location. If the post is dug in there must be at least one other prepared post at an alternative location. The situation may demand that the battle group command post should be more mobile and should move to a new location about twice in each twenty-four hour period in order to avoid being located and destroyed by the enemy. In this event a number of alternative locations must be selected and it may be that few, if any, of them can be dug and that the post will stay mounted in its vehicles during the battle.

SECTION 60.—THE FORWARD BATTLE GROUP BATTLE

Stages

69. The forward battle group battle may reach four stages:—

Stage 1 Detection and reporting of the enemy by forward surveillance posts and defeating of minor enemy crossings, either with or without the deployment of the reserve.

Stage 2 Initial delaying operations and further reporting from the surveillance force and link force.

Stage 3 Reporting by the whole battle group, the final deployment of the reserve, followed by the containing battle itself.

Stage 4 Nuclear fire, planned at brigade group level, on enemy penetrations contained by the battle group.

Note:—During Stages 1-3 the battle group commander may be able to acquire nuclear targets. Nuclear fire should be used whenever a suitable target is acquired.

Speed of the battle and information

70. The battle is likely to move quickly and the above stages, if reached, will develop rapidly. The importance of rapid transmission of accurate information and its collation into intelligence is therefore stressed. It will be especially important to ensure good lateral inter-communication and liaison between all arms as well as between forward battle groups and brigade groups, and also between battle groups and any other agencies operating in their area.

71. The surveillance force should plan on remaining permanently in position. There is much valuable information which the surveillance force can report as the battle progresses. In particular they should go on sending back information about the rate of enemy build-up, locations of enemy concentrations, bridges, ferry sites and special equipment seen crossing the river.

72. There may come a time when the surveillance force can no longer serve any useful purpose in this capacity. If this arises the battle group commander may order their withdrawal rather than leave them in their positions to await elimination by the enemy. Such a withdrawal is likely to be carried out on an individual post basis.

The movement of the reserve to containing positions

73. If the enemy penetrates the surveillance force in strength, it is imperative that contact be kept with him to determine the strength and direction of his advance. This will normally be done by the surveillance in depth and the link force making particular use of radar. On the information from these sources the battle group commander will base his decision to move his reserve from hides to one or more of their reconnoitred and prepared containing positions. This is a difficult decision for the battle group commander to make. If he moves a company to the wrong containing position, then the required concentration will not be forced on the enemy. If he moves a company too early to a containing position, it may be located by the enemy and destroyed by nuclear fire before his advancing troops reach the danger area. If he moves a company too late, then it will not have time to deploy before the arrival of the enemy, and could be defeated without causing the enemy to concentrate.

Nuclear strikes

74. Nuclear strikes are the means by which the battle will be won or lost. Accuracy of location and timing will be vital. Warning time for our own troops is longer than the actual response time and so, if warning time can be reduced, this or any other method which cuts down the response time will be a valuable gain. To try to forecast the relative positions of the enemy and our own forces may be difficult or even impossible.

Safety

75. Before a nuclear missile is fired, it is essential that our own troops and ground zero are sufficiently far apart for the former to be safe from casualties and damage. It will seldom be practicable to move our own troops who in such a situation would probably be in contact with the enemy. If it is not possible to move our own troops, then the DGZ of the nuclear missile concerned must be kept sufficiently far away from them to comply with the minimum acceptable degree of vulnerability laid down by the brigade group commander.

76. There may be cases where it is both possible and essential to move our own troops so that the DGZ of a missile can be placed where it will achieve the desired effect on the enemy. In this event safety can be achieved in one of two ways and it will be the responsibility of the battle group commander to decide which method suits the existing conditions. The first is for the battle group commander to lay down a number of report lines in his area before the battle. These report lines will run both from flank to flank and from front to rear. Troops are ordered to move rearwards or laterally to one or other report line shortly before the nuclear missile is to be brought down. The second method is for the battle group commander to give out the minimum safe distance from DGZ, together with the time of the strike, and to leave it to subordinate commanders to be at the required safe distance by the time of firing.

Acquisition of nuclear targets

77. To acquire targets with any degree of accuracy, it is essential during Stages 2 and 3 that contact and observation be maintained with the enemy and that the maximum delay be imposed by offensive action. The only time when it is proper to break contact is when a nuclear weapon is to be fired and troops are moving back behind a report line. At this time a clean break should be attempted. Every available means must be used to locate the construction sites of enemy bridging or ferrying or areas where his snorkel tanks are crossing in large numbers. If this is impossible

some indication of enemy intentions may be given by the sites of his main breaching operations.

Control

78. Owing to the size of areas of responsibility the battle group commander's orders will take the form of directives rather than detailed instructions, once the battle has started. The sub-unit commander will be responsible for interpreting these directives and giving detailed orders to his sub-unit to implement the general instructions contained in the directives. At the same time the battle group commander must be kept fully informed of the exact locations of every sub-unit under his command and every other unit or detachment operating in his area.

79. If this is to be achieved it is essential that:—

(a) Communications and control at all levels are perfect.

(b) Report lines and nicknames are known to commanders at all levels.

(c) There is an efficient system of recognition of friend from foe.

Section 61.—THE RESERVE BATTLE GROUP

80. Assuming that the brigade group is deployed with two battle groups forward carrying out tasks and prepared to fight a battle as already described, the third battle group will probably be sited in depth behind the two forward battle groups and in rear of the containing line.

81. The tasks of the reserve battle group are likely to include some or all of the following:—

(a) Anti-airborne operations.

(b) Provision of guards and escorts for nuclear artillery in or near to the brigade group area.

(c) Manning additional containing positions to prevent the enemy penetrating in strength between any of the containing positions already held by the two forward battle groups.

(d) Attacking and destroying any enemy who succeed in arriving in rear of the brigade group containing line.

(e) Flank protection, if deep penetration occurs in a neighbouring brigade group sector.

(f) Brigade counter-attack force or offensive follow-up action to mop up any enemy surviving after one of our own nuclear strikes.

82. Initially this battle group will be located in hides in the same way as the reserve of forward battle groups. Counter-attack tasks and possible containing positions will be reconnoitred and prepared wherever possible.

CHAPTER XVI

THE WITHDRAWAL

"He restored matters by delay". Ennius—of Fabius, surnamed Cunctator

SECTION 62.—WITHDRAWAL IN NON-NUCLEAR OPERATIONS

Commanders aim

1. The commander's aim in a withdrawal will normally be to withdraw from contact with the enemy, intact and without interference, to a new defensive position.

Reasons for withdrawal

2. *(a)* Disengagement from an unsuccessful battle.
(b) To conform with movement of flank formations.
(c) To gain time for arrival of reinforcements.
(d) Shortening the front.

Basic principles

3. There are three:—
(a) Maintenance of morale.
(b) Control.
(c) Secrecy.

Maintenance of morale

4. Withdrawal often originates from a tactical defeat and, as a result, enforces a greater strain on the morale of troops than any other operation of war. This must be counteracted by a high standard of discipline, and by commanders at all levels inspiring confidence. Everything possible must be done to maintain a high standard of morale:—

(a) Once the withdrawal has started, reliable information about what is happening must be passed to all ranks to stop the spread of depressing rumours which lower morale.

(b) Good administrative arrangements must be made throughout for feeding troops and replenishing ammunition and petrol.

(c) Withdrawal should be practised in training, like the attack or the defensive battle, so that if it is necessary in war, troops will treat it as a normal operation and will not panic.

Control

5. Good control is required at all levels. Nothing will help more than a simple and flexible plan, clear orders and good communications: these and a system of check points and RVs help the commander to control his whole unit during both the thinning out and final abandonment of the position.

6. Orders must reach subordinate commanders in time to allow them to make a considered plan. These orders will be based on three basic timings:—

(a) Time up to which the position will be denied to the enemy.

(b) Time before which there will be no rearward movement, except for rear reconnaissance parties.

(c) Time to be clear of a line in rear of the position or time at which position will be finally abandoned.

7. The object of the third timing is to enable the artillery and air support available to know the position of our own forward troops and the time when they can engage the enemy on the abandoned position.

Rear reconnaissance parties

8. It is usual for commanders of units and sub-units to remain forward with their troops, so that they can fight the battle if necessary. Seconds-in-command reconnoitre the new position in rear with representatives of support platoons and supporting arms under command or in direct support.

RVs

9. An RV should be selected for each unit and sub-unit to enable the commander to retain control of his whole command. The RV is a tactical halt, and therefore will require protection. The RV and routes for units and sub-units must always be laid down by the next higher commander: company RVs and routes are laid down by the battalion commander, and so on. This stops friendly units clashing during the withdrawal.

Check points

10. Established at easily recognizable places on the route back to the RV to enable commanders to gain information of the progress of their sub-units during the withdrawal, and to check that all troops have left the position. Sub-units do not halt at a check point.

Traffic control

11. Efficient and comprehensive arrangements for traffic control are essential. All unnecessary vehicles must be sent back from the position at the earliest opportunity.

Secrecy

12. From the tactical situation it will usually be apparent to the enemy that a withdrawal is imminent but a commander can do much to deceive the enemy as to the actual time it is to take place; hence the advantage of a night withdrawal.

13. To maintain secrecy and gain surprise:—

(a) Continue the normal pattern of activity on the front right up to the time of withdrawal; normal patrol activity, and harassing fire.

(b) Avoid abnormal increase or decrease in radio traffic; observe strict radio security; make full use of line and runners for messages of a secret nature.

(c) Give sub-unit commanders details required for planning purposes in good time: use Warning Orders.

(d) All abnormal movement, including vehicles, should take place during darkness: this refers especially to the rearward lift of administrative personnel, stores, transport, reserves and reconnaissance parties.

(e) Plan harassing fire to cover the noise of rearward movement of tanks, vehicles, etc., but *see (a)* above.

Withdrawal by night

14.*(a)* A commander is more likely to achieve surprise by a night withdrawal. If normal activity continues on the front until the last moment, it will be difficult for the enemy to determine the exact time of withdrawal. There is, therefore, more chance of making a clean breakaway and avoiding a running fight.

(b) By night, the rearmost sub-units withdraw first and the forward sub-units last. In a battalion, rear companies usually withdraw first, forward companies denying the position until the time comes to abandon it. Forward companies will normally start to thin out about 30 minutes before the position is to be abandoned. Rear platoons of forward companies provide the local counter-attack force until they themselves withdraw, covered by the forward platoons. The latter provide the rear parties.

(c) The rear parties must be strong enough in fire power to give the impression that the position is still firmly held.

(d) It will usually be possible to leave the majority of the support weapons until the later stages of the withdrawal, because of their mobility, depending on the amount of time it is likely to take to extract them from their battle positions; in some circumstances, manhandling may have to take place so as not to prejudice secrecy.

(e) Tanks may withdraw early owing to noise and the time it takes to move back out of position but tanks can move less noisily at night if given the necessary time. If kept too late, they may get involved with the final withdrawal of the Infantry; separate routes of withdrawal should be laid down for tanks.

(f) With improved night-driving and shooting devices, there is a decided threat of the enemy using tanks in support of Infantry by night and some anti-tank weapons must remain in the position until shortly before it is abandoned. But it will also become more usual for our own tanks to remain in the position until later.

(g) If the tanks move out early, MOBATs and rocket launchers must be left until the last possible moment.

Withdrawal by day

15.*(a)* Likely to be a very difficult and costly operation if it is in close contact with the enemy, especially if the enemy has air superiority.

(b) Troops will have to fight their way back covered by fire from artillery, tanks, GPMGs and the air: GPMGs may be sited to impose early deployment on the enemy.

(c) Forward sub-units withdraw first, covered by reserve sub-units, this process being repeated until a breakaway is achieved.

(d) Tanks are an ideal weapon to be included in the rearguard on account of their speed, good cross-country performance and great fire powers. They can often lift out the last Infantry to abandon the position. It may be difficult to maintain suitable bridges over obstacles in rear but should there be an enemy tank threat, it will not be unusual for tanks to stay until the last Infantry abandon the position.

Advantage of night withdrawal

16. A night withdrawal generally offers a better chance of success than a withdrawal by day. In the latter case, unless

complete surprise can be achieved and good covered lines of withdrawal exist, with an obstacle to delay the enemy, it will always be difficult to avoid a running fight and severe casualties.

Sequence of a battalion withdrawal by night

17. The following programme is an example of how a battalion with a troop of tanks in direct support might withdraw by night when in contact with the enemy, when last light is 1830 hours, and the position is to be denied to the enemy until 2130 hours.

1845 hours Remaining vehicles of A echelon withdraw (which may have come forward to collect stores, bring up meals, etc.);

\+ Non-essential F echelon vehicles, if any, withdraw (only command vehicles and towing vehicles left forward);

\+ Tank troop withdraws;

\+ D Company (reserve company) withdraws (subsidiary role to protect battalion RV and embussing point); battalion HQ, less command post, withdraws;

\+ All patrols less company standing patrols are brought in;

\+ A, B and C Companies (forward companies) start to thin out, anti-tank guns move out; GPMGs (SF) remain as late as possible; mortar sections remain at base-plate positions as long as possible;

2135 hours A, B and C Companies (forward companies) abandon position; battalion command post withdraws;

\+ D Company withdraws after the rest of the battalion has embussed and is clear of the embussing point;

\+ All troops to be SOUTH of a line X—Y.

Notes

18.*(a)* In this case, the tanks withdraw soon after last light. The anti-tank defence then devolves on the company anti-tank weapons; their time of withdrawal depends on the minimum time required to extricate them from their battle positions: manhanding may be necessary to maintain secrecy.

(b) The battalion command post must stay until the end; it is usually near the battalion check point.

(c) GPMGs (SF) should, owing to their fire power, stay forward as long as possible; the factors affecting their time of withdrawal are as for the MOBAT.

(d) Mortars must be able to respond to calls for fire until the last possible moment.

(e) FOOs will normally remain with rifle companies throughout the withdrawal. There must always be some guns ready to fire in support of the rearmost troops. The battery commander stays at the battalion command post with the battalion commander. A fire plan to assist the withdrawal is essential.

(f) Forward companies normally start to thin out about 20/30 minutes before the time of final abandonment.

(g) The position must be adequately defended up to and including the time until which the battalion has been ordered to deny it. This means that sufficient fire units must be left to maintain the defence of the position until after the time ordered for the denial.

(h) Companies are responsible for the withdrawal of all patrols under their command.

(j) Protection party (D Company) must have made daylight reconnaissance of battalion RV and embussing point.

Artillery tasks

19. These will include:—

(a) Intimate close support of our withdrawing Infantry and tanks at all stages of the operation.

(b) Covering fire for demolition parties.

(c) Defensive fire on all vacated positions.

(d) Covering fire for counter-attacks.

(e) CB: an active policy is likely to be required but will usually be difficult to achieve until the final position is established owing to lack of sufficient time to deploy devices on intermediate positions.

Demolitions in the withdrawal

20. Demolitions play an important part in delaying the enemy, particularly in defiles, eg, river lines where crossing places are restricted.

Demolitions are classified as:—

(a) Preliminary.

(b) Reserved.

Preliminary Demolitions

21. Preliminary Demolitions are those of limited tactical value which may be blown as soon as the engineers have prepared them, or on the orders of the tactical commander. These demolitions do not have a demolition guard. Their destruction is an engineer responsibility.

Reserved Demolitions

22. These are demolitions which are specifically controlled either because they play a vital part in the tactical or strategical plan or on account of the importance of the structure itself. Three commanders are concerned with the execution of a Reserved Demolition:—

(a) The authorized commander: the military authority who has overall responsibility.
(b) The commander of the demolition guard.
(c) The commander of the demolition firing party.

Demolition guard

23. Reserved Demolitions are always guarded by a force called the demolition guard whose size will vary according to the importance of the demolition. The normal task of the demolition guard is to protect the demolition until the order is given for it to be blown and to ensure that the demolition is then successful. Their defensive positions will be sited close to the demolition task and in the case of a bridge, with some troops actually on it.

24. The officer commanding the demolition guard will have under his command a small engineer firing party, normally from the unit which prepares the demolition, whose task is to maintain the charges and firing circuits and to blow them when ordered by the officer in charge. The officer or NCO in charge of the firing party will normally be at the HQ of the officer commanding the demolition guard.

The demolition firing party commander has technical instructions for the preparation of demolitions on an AF 4012B.

25. The demolition will first be prepared at "State of Readiness 1 (Safe)" which safeguards it from premature initiation; before it can be blown it must be altered to "State of Readiness 2 (Armed)" by inserting the detonators in the charges (this may take some time).

Co-ordination of firing arrangements.

26. The detailed responsibilities of commanders concerned with the execution of a demolition are contained in the "Details of Agreement—Orders to the Demolition Guard Commander" (STANAG 2071).

SECTION 63.—WITHDRAWAL IN NUCLEAR OPERATIONS

Scope

27. This section deals with the more obvious differences in the withdrawal in a nuclear setting. Wide dispersion makes control and the maintenance of an intact front more difficult. The employment of APCs will, however, increase the mobility and speed of withdrawing Infantry. Their organic radio makes control of movement easier.

Reasons for withdrawal

28. Withdrawal may be necessary to:—

(a) Conform to a pre-arranged tactical plan, such as pulling back to allow a nuclear strike during the conduct of an offensive defence battle.

(b) Disengage quickly from the enemy after having suffered a local tactical set-back which has made evasive action necessary.

(c) To avoid being pin-pointed by an enemy advance.

29. In all such cases it will usually be necessary to conduct rearguard actions to enable the main force to withdraw with minimum enemy interference.

Basic principles

30. *(a) Maintenance of morale:* in the early stages of a nuclear war, withdrawals may be frequent and the strain of morale much more severe than formerly.

(b) Secrecy: no change.

(c) Control: concentration would be disastrous and control must be kept whilst maintaining the dispersion of company groups. Each group should consist of Infantry with their own support weapons, together with tanks and, perhaps, artillery FOOs. The battalion commander can exercise control as long as he is receiving adequate information and knows exactly where his sub-units are at all times. Bounds and report lines should be laid down before the operation begins and each group should be allotted a lane in which it can fight and manoeuvre. This will ensure continuity of dispersion and could well be the pattern of nuclear withdrawal battles.

Company groups

31. In the fluid type of battle outlined above, each company group must be self-contained and possess the ability to fight on its

own for protracted periods without the necessity for re-supply. Tanks will accompany groups of APCs in the withdrawal. They will provide anti-tank fire support and may, indeed, be last out.

Employment of nuclear artillery

32. The main tasks will be to create a favourable situation for a clean break and obstacles to the enemy advance. The main problems will be deployment and movement. Command should be exercised at the highest possible level but it will often be necessary for control to be delegated to a low level.

Problems of re-supply

33. Care must be taken to position supplies in relation to the lanes allotted to company groups for the withdrawal. Siting should also be related to bounds, hides and other places where supplies are likely to be required.

CHAPTER XVII

RELIEF IN THE BATTLE AREA (NON-NUCLEAR)

"Plough-hoss don't squeal en kick w'en dey puts n'er hoss in he place".—Joel Chandler Harris—Nights with Uncle Remus

SECTION 64.—GENERAL

Introduction

1. An Infantry battalion's introduction to a new area should be carried out calmly, quickly and efficiently. This platitudinous remark in no way detracts from the importance of a successful relief operation as a factor in the battalion's morale.

2. Both incoming and outgoing units are vulnerable during this operation. There are many soldiers on the move in a forward area and command and control are difficult to exercise if an enemy attack develops while the relief is in progress.

3. The aim of the operation is to replace one battalion by another, unknown to the enemy, whilst maintaining an intact front throughout.

4. This chapter deals with relief on the battalion level but companies will also relieve companies: the same principles and drill apply.

Principles

5. Relief should be conducted in accordance with the following four principles:—

(a) Secrecy: if the enemy attacks or shells heavily while the relief is in progress, casualties may be heavy. Any changeover must be concealed as for long as possible, especially when units are from different formations. Bad radio discipline is most likely to cause a breach of security. Security on the air must be first class and the additional measures needed must be studied and rigidly enforced.

(b) Speed: compatible with silence and control; it depends on:—

(i) Whether the relief takes place by night or day.

(ii) How much the position and route to it is overlooked by the enemy.

(iii) Location of debussing point and other movement factors. By night, the aim must be to ensure that the incoming battalion is concealed and

ready to fight by first light and the out-going battalion is then no longer under direct enemy observation.

(*c*) *Silence:* noise draws enemy reactions and prejudices secrecy. The need for silence may often be greater than the need for speed and arrangements for control must be such that silence is not broken unnecessarily.

(*d*) *Control:* although secrecy, speed and silence are major factors in the success of this operation, it is control which will be decisive if the unexpected happens. Good arrangements for guides, check points, route marking, movement on foot and in transport, and action by F echelon transport are the basis of control.

Sequence

6. The problem of a relief operation must be considered in two stages:—

(*a*) Planning and preparation.

(*b*) Procedure for the actual relief.

SECTION 65.—PLANNING AND PREPARATION

Warning Order

7. (*a*) It is highly desirable that a Warning Order should be received 48 hours in advance if sufficient time is to be available for the operation to be carefully planned and conducted.

(*b*) On receipt of it the Commanding Officer will pass on all available information to his O group and nominate the advance party.

(*c*) He and his advance party should go to meet their opposite numbers as soon as possible thereafter and reconnoitre the new position.

Advance party

8. The composition of the advance party depends on:—

(*a*) Whether the incoming battalion is:—

(i) In contact with the enemy and therefore only being transferred from one sector to another.

(ii) In reserve and liable to be called on at short notice for operational task.

(iii) In a rest area.

(*b*) Whether movement is possible in daylight and the number of men the outgoing Commanding Officer is willing to allow forward.

9. The more commanders of all levels can see the ground in daylight and have time to discuss the position with their counterparts, the sooner the battalion will be firmly established and ready to fight.

10. It is an advantage if all members of the party can go forward at the same time but if they have to go in stages, these details must be settled quickly.

11. The minimum battalion advance party should consist of:—

(a) Battalion HQ
Commanding Officer
Intelligence Officer
Guides (including RAP).

(b) HQ Company
HQ Company commander
Regimental Signal Officer (with line party, three A41 radio sets and operators)
Assault pioneer platoon commander
Reconnaissance platoon commander
Guides for battalion transport
Regimental police.

(c) Rifle companies
Company commander with runner
Support platoon commander with runner—with section commanders if possible.
Rifle platoon commanders with runner—with section commanders if possible
Patrol leaders.

(d) Representatives of supporting arms which may be changing over at the same time.

12. This party is the minimum and any of the following may also be included, though they may spend less time in the new position than the others:—

(a) Commander F echelon transport area.

(b) Officer-in-charge of battalion debussing point.

(c) Officer-in-charge of battalion check point, if Intelligence Officer not used for this.

(d) Officer commanding A echelon, Regimental Medical Officer, Regimental Sergeant-major, Quartermaster and Company Quattermaster Sergeants may go forward for a short time; also anyone else the Commanding Officer wants, particularly all members of patrols to be suppled at the time of the relief.

13. If time allows, company and platoon commanders should return to brief their men. They must then go back to the new

position and stay there to keep in touch with the situation until the relief.

Duties of the advance party

14. These may be summarized as follows:—

(a) To live with their opposite numbers and find out all they can about the enemy and their own positions. They must combine tact and inquisitiveness. See Appendix M.

(b) To make all arrangements for the relief to take place quickly and smoothly.

Briefing

15.*(a)* All ranks must be thoroughly briefed, using a model and air photographs whenever possible.

(b) This briefing should also include:

(i) Action in the event of enemy attack during the relief.

(ii) Action in the event of enemy harassing fire.

(c) Checking of arms ammunition and equipment.

Rehearsals

16. It is important to rehearse some of the actions required in the relief. In the end, time will be saved and the chance of confusion reduced to a minimum. Particular attention should be paid to:—

(a) Debussing point drills.

(b) Action on arrival in platoon and section areas and, most important, the method of hand-over of mortar and anti-tank positions.

Section 66.—RELIEF PROCEDURE

Control

17. The control arrangements necessary should be considered under the following headings:—

(a) System of control points and route marking.

(b) Guides.

(c) Communications.

(d) Action in platoon and section areas.

(e) Protection during relief.

(f) Change of command.

System of control points

18. Control points which must be set up are:—

(a) Debussing point (if the first part of the move is in TCVs).

(b) Battalion check point.

(c) Company check point.

(d) Platoon RV.

Debussing point

19.*(a) Location:* this should meet the following requirements

(i) Near enough to the new area to avoid unnecessary marching.

(ii) Far enough back to obviate noise.

(iii) Good turn-round.

(iv) Concealment areas for transport.

(v) Dispersal areas for companies if there is any delay.

(vi) Clear of usual enemy HF areas.

(b) Officer-in-charge

(i) One officer from each battalion will be positioned here.

(ii) They must be experienced and capable of selecting company dispersal areas which must be sited for all round protection.

(c) Timing of arrival: company groups should be based to arrive at ten-minute intervals to allow each one in front to get clear before the next arrives.

(d) Action on arrival

(i) The officer-in-charge of each arriving group reports to the officer-in-charge of the debussing point while his group forms up ready to march off at once.

(ii) The guide is handed over to the officer-in-charge of the group and will lead to the new area. If there is serious delay, the officer-in-charge of the debussing point may order him to lead to the dispersal area instead.

Battalion check point

20.*(a) Location*

(i) A position on the route forward from the debussing point but short of the place at which the first company leaves the main route,

and not so close to the debussing point that companies have not had room to get shaken out.

(ii) It may well serve also as company check point for one or more of the reserve companies.

(iii) There must be suitable dispersal areas for, at the most, two companies.

(b) Officer-in-charge: one officer from each battalion.

(c) Action on arrival

(i) This solely a check point: there is no halting, unless the Commanding Officer orders it, owing to unexpected delay.

(ii) The officer-in-charge of each company group reports the head of his group; a responsible NCO should be detailed as last man and will report the tail through.

Company check point

21.*(a) Location*

(i) The points at which companies leave the main route.

(ii) Not short of the battalion check point.

(iii) Platoon dispersal areas should be reconnoitred.

(b) Command: the CSM of the outgoing company is a suitable person to be in command.

(c) Action on arrival

(i) There is no halting.

(ii) Each platoon and company HQ reports its head and tail.

(d) Guides. See paragraphs 26-28.

Platoon RV

22.*(a) Location*

(i) Close to platoon HQ.

(ii) It is the place where sections are met by their guides (*See* paragraph 37 *(a)* below).

(b) Action on arrival

(i) Again, no halting.

(ii) Sections and platoon HQ are led off to their respective positions.

Route marking

23. The incoming battalion is responsible for marking the route forward to debussing point.

24. From there, forward to platoon area, the outgoing battalion is responsible, using the signs of the incoming battalion, which will be taken forward by the advance party.

25. By night, light signs will be required also and tape may be necessary at difficult places.

Guides

26. Responsibility for providing guides and for guiding lies with the outgoing battalion.

27. The following exceptions should be made:—

(a) Mortar section guides: should be included in the incoming battalion advance party. Mortar sections may be distant from company localities and guides may have to meet their sections at the battalion check point, or even at the debussing point. This will avoid unnecessary carriage of weapons when mortar base plate positions are in rear of company localities.

(b) Battalion HQ sub-units: intelligence section, RAP, etc, for the same reasons.

(c) Battalion transport: where it is planned to move the incoming battalion's transport, or any part of it, into the area after the outgoing battalion has left, guides must be provided by the incoming battalion. These guides should be members of the advance party.

(d) Inter-allied relief: where there are language difficulties, all guides may have to be provided by the incoming battalion.

28. Guides must be briefed carefully and, in addition to knowing the routes, they must know the areas allotted to their sub-unit in the dispersal areas at debussing point and check points.

Advance party representatives

29. Officers and NCOs in the advance party to represent their sub-units at the company check point so that:—

(a) Any last-minute changes in orders can be passed on: those which cannot wait until the relief has been effected.

(b) There is someone else who can take over if the guide provided by the outgoing sub-unit becomes a casualty.

30. The officer or NCO should move well forward in his sub-unit but not beside the guide to lessen the chances of both becoming casualties at the same time.

Communications

31. There are three alternative means of communication during the relief which should be used in the following order of priority:—

(a) Line.

(b) Outgoing battalion radio net.

(c) Incoming battalion radio net.

Line

32. Line will be required to the debussing point and battalion check point, as well as to sub-units, so that information and orders can be passed freely by secure means.

Radio

33. The volume of radio traffic should be kept normal but if this is not possible, traffic should be confined to the outgoing battalion net already known to the enemy. Only if both these courses are impossible may the incoming battalion use its not.

Call signs

34. There will be no confusion on the A41 net as the two battalions will be on different frequencies, but on A40 nets, there might be a company from each battalion on each channel. By using both type A and B A 40's there are nine channels available. The brigade signals officer will allocate channels to battalions.

Radio silence

35. The incoming battalion should observe radio silence for as long as possible.

Communication with the advance party

36.*(a)* *A41 sets:* three for use at the debussing point, battalion check point and for the Commanding Officer's rover.

(b) *A40 sets:* company representatives should take the company rover set.

Action in platoon and the section areas

37.*(a)* On arrival at the platoon RV, each section will be met by a guide and led off to its position. The platoon advance party representative should know the names of the men in each section. He should have given details to the outgoing section commander and arranged with him which slit trenches they will occupy.

(b) The outgoing section commander then leads the members of the incoming section, by pairs or fours, to their trench(es). The incoming men occupy the shelter trenches on arrival. These must be clear of kit belonging to the outgoing soldiers who will all be standing-to.

(c) Both sections commanders now go to each slit trench, for the outgoer to brief the incoming occupants on their arcs of fire, etc. The incoming section commander listens-in but he may do the briefing himself if he has been in the position for some time as a member of the advance party.

(d) When this is completed, section commanders report to their platoon commanders that they are ready to take over. Platoon commanders inform their company commanders, asking permission to complete the relief.

(e) Next, while the platoon commanders remain at platoon HQ, ready for any emergency, both platoon sergeants together visit each section position in turn, ordering the outgoing sections to withdraw to the platoon RV.

(f) They will then report back to their platoon commanders and the outgoing platoon commander with his platoon HQ moves to his platoon RV. The platoon will only stop there as long as is necessary to ensure that it is complete before moving on to the company check point and company RV.

(g) Incoming platoon commanders must report to their company commander when the relief is complete.

Runners

38. Platoons will each send two runners to company HQ when the relief is complete. One will stay there and one will come back to ensure that at least two men know the routes. Similarly, when the company relief is complete, companies will send two runners to battalion HQ, one of whom will stay and one come back. In each case, one of the runners should be the one who was in the advance party.

Stand-to

39. The outgoing battalion will stand-to throughout the relief. The time for the start of stand-to must be given out in advance: it should not be earlier than is necessary to cover the relief.

The incoming battalion will continue to stand-to until the Commanding Officer orders stand-down. This should not be before the outgoing battalion is clear of the battalion check point.

Protection during the relief

40. Protection during the relief, scaled according to likely enemy activity, involves:—

(a) Patrols.

(b) Protection for the debussing point, battalion check point and company check points.

Responsibility

41.*(a)* It is the responsibility of the outgoing battalion to provide the patrols.

(b) It is the inherent responsibility of all units to ensure their own local protection at all times and the incoming battalion may have to be responsible for protecting its debussing point and battalion and company check points.

(c) Responsibility for any or all of these may, of course, be changed by mutual agreement between the Commanding Officers.

Patrols

42. These include:—

(a) *Listening posts* near our wire and lanes through out minefields.

(b) *Reconnaissance patrols*, both out in front and on the flanks of the route into the battalion area.

(c) *Fighting patrols* as ordered.

Provision of patrols

43.*(a)* *Listening posts:* they are located within our own perimeter defence and can be changed over during the relief in company areas.

(b) *Reconnaissance patrols:* normally from the outgoing battalion, will stay out all night and arrangements must be made for them to rejoin their own battalion next day. The incoming Commanding Officer may prefer to find these patrols from his own battalion. In this case the commander and members of the patrol must go forward with the advance party and be given the same opportunities for reconnaissance and briefing as they would during normal life in the line. It is much better if these patrol commanders can go out the previous night, with a patrol from the outgoing battalion, to get used to the ground and routes.

(c) *Fighting patrols:* if a patrol is found by the incoming battalion, the same provisions will apply as in sub-paragraph *(b)* above. If the outgoing battalion provides the patrol, it will be useful to send members of the incoming battalion with the patrol to familiarize themselves with the ground. These representatives must be included in the advance party.

Debussing point

44. Anything from a few listening posts to a whole company may be required to protect this, according to the degree of enemy activity. The area protected should include the dispersal areas.

Check points

45. As these are likely to be close to or within the battalion location, their protection is unlikely to require large numbers of men. Dispersal areas should be included in area under protection.

Change of command

46. This must be agreed between Commanding Officers, before relief takes place, and orders for it issued down to platoons.

47. Normally it will be as under:—

(a) *Platoons:* when all three sections have been relieved.

(b) *Companies:* when two or more platoons, to include the forward platoons, have completed relief.

(c) *Battalion:* when two or more companies, to include the forward companies, have completed relief.

CHAPTER XVIII

THE ADVANCE

SECTION 67.—INTRODUCTION

"Opportunity is often lost by pausing." Latin proverb

Types of advance

1. An advance may be conducted under a variety of conditions which fall into three main categories, each with a different tactical aspect:—

(a) Approach to contact: an equal degree of initiative is likely to be possessed by both sides and the tactical emphasis will be on wide reconnaisssance with the main forces uncommitted, ready to fight when the clash occurs.

(b) Following up a deliberate withdrawal: the enemy may decide to withdraw to conform with his strategic plan. If he does this, his forces will be balanced and ready for battle, and he will be capable of staging a counter-stroke at any moment. Following up any withdrawal calls for speed and bold action to exploit the initiative which the attackers always hold. In following up the deliberate withdrawal, that need is tempered by the importance of retaining balance throughout the force at all times, so that enemy counter-thrusts can be resisted without disrupting the advance.

(c) Pursuit: In this case the enemy has been forced to surrender the initiative. Our own troops should therefore act boldly, taking risks to ensure that the pursuit becomes a rout and missing no opportunities to envelop the enemy.

Main principles of the advance

2. *(a) Wide reconnaissance:* when the situation is vague and operations are fluid, reconnaissance should be considered on a wide front. Acting on the results of such reconnaissance, the battalion commander can anticipate enemy reactions and thereby maintain the initiative. The reconnaissance plan must also provide for engineer reconnaissance parties moving well forward. Close air reconnaissance will, if available, be invaluable to the battalion commander in helping him to plan deviations round obstructed areas sufficiently far in advance to prevent serious delays bringing his column to a halt.

(b) *Maintenance of momentum:* will be achieved by continual and relentless offensive action, by never losing touch with the enemy, and by destroying minor opposition quickly. Speed will often be the dominant factor and formations and units must be prepared to continue the advance by day and night, within the physical capacity of the troops engaged. If opposition cannot be by-passed, correct grouping will help to ensure that an attack can be quickly mounted to maintain the momentum of the advance.

(c) *Use of air power:* the air force can locate and strike the retreating enemy ground forces or his mobile reserve even when the advance is outrunning the support of its artillery. Air supply may have to supplement the normal means of maintenance if the L of C becomes too stretched, or is cut. Indeed the concept of air supply would be normal in a limited war setting. The seizure of suitable landing grounds for the air force must be taken into account during planning.

(d) *Concentration:* in mobile operations the ability to meet a threat from any direction by rapid concentration of the main striking force, and by the concentration of artillery fire, is of even greater importance than in other types of operation.

(e) *Flexibility:* decentralization will be necessary to save time. Commanders must not be tied too closely to lines or specific methods of advance. They should be given general directions and fairly distant objectives and allowed plenty of latitude to carry out these directions. The advance should be carried out on a broad front to exploit the weak points in the enemy's defensive system, not just restricted to roads and tracks.

(f) *Grouping and order of march:* depend on such factors as:—

(i) The nature of the enemy.
(ii) The strength and nature of enemy opposition.
(iii) The need to be prepared to capture certain objectives.
(iv) The direction of possible threats.

SECTION 68.—TACTICAL HANDLING

Objectives

3. The selection of objectives is an important aspect of planning designed to disrupt enemy positions and facilitate our own advance. In a rapid advance, the most suitable objectives are

likely to be centres of communication, or the ground immediately dominating them. Airfields or ports may be selected as objectives in special cases.

Control

4. Control depends on:—

(a) Good initial orders.

(b) Good communications.

(c) Commanders moving well forward.

(d) Good battle procedure.

5. Commanders will control the advance initially by issuing orders implementing a general plan. Authority will be decentralized to subordinate commanders, within this plan.

6. Thereafter the advance is controlled by the allotment of:—

(a) *Axes:* used to show the general line astride which formations will move.

(b) *Centre lines:* the routes along which the HQ of formations, units or sub-units will move. Centre lines of formations or units are sometimes laid down by the next higher formation.

(c) *Bounds:* tactical features which can be held if necessary. Units and formations do not normally halt on bounds but can be ordered to do so to conform to the situation elsewhere.

(d) *Report lines:* arbitary lines drawn on a map and of no tactical importance. They should be easily recognisable on the ground, eg, lateral roads, railway lines, etc. They are allotted nicknames and their purpose is to provide an easy means of reporting progress.

Move of main body

7. The advance of the main body along a road should be properly controlled. It should not be allowed to snake its way forward behind the advance guard. Each sub-unit should be moved forward from one harbour area to another and should not be allowed onto the road until it can be given a clear run.

This system has the following advantages:—

(a) The order of march may be varied and essential units or items of equipment can be moved forward rapidly.

(b) It is less tiring for the troops.

(c) A less attractive target is provided for enemy air forces.

By-passing opposition

8. By-passing pockets of resistance may often be essential in a pursuit to maintain the speed of the advance. The enemy can be sealed off to be dealt with subsequently by follow-up formations. The policy on this matter will be laid down by the higher commander who will indicate which routes must be opened up and whether opposition may be by-passed.

9. In a more deliberate advance it may be more profitable to attack any enemy strong point at once. The enemy is unlikely to hold in strength any feature which does not have a considerable influence on the tactical battle. The capture of such a feature will therefore tend to disrupt the enemy defence and accelerate our own advance.

Position of commanders

10. Commanders in the advance should move well forward where they can influence the battle at the earliest stage but they should avoid:—

(a) Interfering with the actions of their subordinates while the situation is still within the capabilities of the latter's command,

(b) Becoming over-influenced by the local tactical situation

Reconnaissance

11. Continuous, active and wide reconnaissance must be carried out by both air and ground forces during an advance. Ground reconnaissance will confirm and supplement the information received from the air and other sources.

12. Sub-units employed on reconnaissance must be given definate questions to answer. They must not be given simultaneous protective duties for these would inevitably hamper the scope of their manoeuvre for reconnaissance purposes.

13. They must be trained to appreciate and report immediately all discoveries which will be of value to higher commanders and staffs. The armoured car regiment is organized primarily for reconnaissance duties.

14. The reconnaissance plan must always provide for engineer reconnaissance. Arrangements must be made for engineer reconnaissance parties to move with the mobile troops or with the advance guards. They will normally consist of an engineer officer in a scout car with a party of sappers in an APC.

Tanks

15. Some of all of the available tanks usually lead the advance,

Artillery

16. The commander of the close support battery should be in the Advance Guard HQ with the Commanding Officer. An FOO should be with the vanguard (*see* paragraph 24) and artillery should be ready for instant action if the advance is held up. Some pre-planning of likely targets may be possible.

Engineers

17. The main role of the engineers in the advance is the maintenance of the mobility of our own troops. This will entail the opening up and maintenance of routes. Early warning and reconnaissance are essential preliminaries to all engineer support. Engineer intelligence is extremely valuable to higher commanders and staffs.

Administration

18. Although the normal system of maintenance should be kept in operation for as long as possible during the advance, there may be times when the replenishment system becomes so stretched that special measures have to be introduced. It may be necessary for leading troops to be self-contained for some days so that the advance is not delayed for the re-establishment of normal maintenance.

Morale

19. The morale of troops tends to be high during an advance, especially in a pursuit, when much may be asked of them. But troops do need some rest or they become exhausted, and vehicles, especially tanks, need maintenance if they are to keep going.

20. Although as much ground may be won in the first few hours of daylight as in a night's hard slogging, the effect on the enemy's own morale of keeping up the pressure by night and day must not be minimized.

SECTION 69.—PROTECTION DURING THE ADVANCE

Protective detachments

21. Protection during the advance is afforded by:—

(a) Mobile troops.

(b) Advance guards.

(c) Flank guards.

Mobile troops

22. The degree of protection to be obtained from mobile troops and their composition will depend upon the role which they have been given. This may be:—

(a) *Reconnaissance of the front or flanks:* apart from early warning of the enemy little protection will be afforded.

(b) *Protection of the front or flanks:* the ground will be searched to a degree dependent upon the frontage and the number and type of troops allotted; full warning may be expected of any considerable body of enemy who will be harassed or delayed but the depth to which reconnaissance can be carried out will be limited.

(c) *Independent tactical tasks:* This may include such tasks as the seizure of an important tactical area for offensive or defensive purposes in advance of the arrival of the main body.

The force for these tasks, particularly *(a)* and *(b)* above, is normally based upon the armoured car regiment.

Advance guard

23. An advance guard serves two purposes:—

(a) It prevents the force from running blindly into enemy opposition which may have escaped the notice of the mobile troops.

(b) It provides a force sufficiently strong to clear away minor opposition or, if major opposition is met, to cover the deployment of the main body of the force.

24. Advance guards containing elements of all arms are always provided by a force, whether or not they are protected by mobile troops. The advance guard is usually sub-divided into:—

(a) The vanguard.

(b) The main guard.

25. Tanks should be allotted to advance guards. The tanks with their power of manoeuvre and mobile fire power are the best and quickest means of dealing with enemy rearguards and light opposition. When such opposition is encountered, tanks are usually needed sooner or later and it is as well to have them well forward from the start. If tanks are not present with the advance guard, the advance will be slowed down by the need to take continuous precautions against enemy tank attack.

26. An engineer reconnaissance officer will probably move with the vanguard with an engineer section. The troop commander will probably accompany the Commanding Officer in Advance

Guard HQ; his troop, less one section, will be with the main body initially.

27. The main body will follow the advance guard, and its movement must be carefully regulated from harbour to harbour to avoid congestion when the progress of the advance guard is slow, or undue dispersion when the advance guard is moving quickly.

Flank guards

28. The flanks of an advance may be protected by:—

(a) The warning given by wide reconnaissance on the flanks backed by a central mobile reserve from the main body;

(b) Providing a definite flank guard, consisting of a force of all arms; this force may either move on a parallel route to the main body or picket lines of approach from the dangerous flank.

29. The size of the flank guards must be kept to a minimum, otherwise effort will be diverted from the main thrust. Very considerable risks may be taken in this respect when the advance takes the form of a pursuit.

SECTION 70.—THE NIGHT ADVANCE

Purpose of the night advance

30. A retreating enemy will usually try to take advantage of the hours of darkness to break contact, move back and organize his next position. It will therefore be necessary to advance both by day and by night to keep up the pressure necessary to deny him this opportunity.

Factors

31, The most important factors to be considered in deciding whether to advance by night are:—

(a) The importance of maintaining pressure on the enemy.

(b) The chance of achieving surprise.

(c) Degree of visibility: phase of the moon or availability of movement light.

(d) Wear and tear: tanks and vehicles need time for maintenance in long advances and all troops require rest at some time.

(e) The passage of defiles, which may be safer at night when observation is denied to the enemy.

(f) Ground: both tracked and wheeled vehicles require fairly good going for night movement.

(g) Opposition expected from enemy air forces, but enemy air action is not confined to daylight.

32. Consideration should always be given to the use of movement light during an advance by night. Its use will reduce fatigue of drivers and may make a mounted advance possible where an advance on foot would otherwise be necessary. The lights will only provide illumination up to a distance from the Start Line of four to six miles, dependent on weather conditions and the existence of a suitable site for the lights.

SECTION 71.—PLANNING THE ADVANCE

Means of movement

33. Infantry may move in APCs, TCVs, on foot, or be carried on tanks, but not on the leading tanks.

Importance of the advance guard

34. The protection afforded by mobile troops, armoured cars and so on, will not detract from the importance of the advance guard though it may affect its composition.

Points to be decided

35. The advance may be on approach to contact or a follow up of a withdrawing enemy and this situation will be taken into account in the battalion commander's appreciation. The points he has to decide include:—

(a) Likely enemy resistance, and its effect on grouping.

(b) Detailed tasks for each company.

(c) Grouping, for the vanguard, Advance Guard HQ and main guard.

(d) Detailed tasks for supporting arms.

(e) Fire plan, including pre-selected targets.

(f) Bounds, report lines, reference points and code names, to assist in maintaining control on the move.

The vanguard

36. The composition of the vanguard depends, of course, on the troops and transport available, the nature of the country, the degree of enemy opposition likely to be encountered and the number of routes to be used. Command of the vanguard should be given to the predominant arm.

37. The first company group in the main guard must be ready to take over as vanguard, if required.

An advance guard using APCs

38. A possible composition of a typical advance guard, using APCs, is as follows:—

(a) Squadron of tanks; Vanguard R group (company commander, squadron commander, FOO and MFC); Rifle company in APCs	Vanguard on a wide front,
(b) Commanding Officer, Battery commander, Engineer troop commander	Advance Guard HQ
(c) Company groups	Main guard

When APCs are not available

39. A possible composition in these circumstances is:—

(a) Two troops of tanks and two platoons, deployed off the road; Vanguard HQ; One platoon; Support platoon; Section of engineers.	Vanguard
(b) Commanding Officer and O group	Advance Guard HQ
(c) Company groups	Main guard, moving by sub-units from hide to hide.

Move of the main body

40. The move of company groups from hide to hide should normally be controlled by the battalion commander using radio and, perhaps, a pre-arranged system of codewords. The size of gaps between sub-units should be governed by considerations of time rather than of space, according to the nature of the country and the means of movement available.

SECTION 72.—THE ADVANCE IN NUCLEAR WARFARE

Introduction

41. This section deals with the advance in a war in which nuclear weapons are available to both sides. Although the attack and the advance under nuclear conditions tend to merge into the single

break-through operation carried out by the same formation, the separate phases of the advance set out in paragraph 1 still apply. Similarly the fundamental principles of the advance are equally applicable to nuclear warfare.

Advance to contact

42. An advancing force before contact with the enemy is unlikely ever to form a worthwhile nuclear target, whether moving on roads or across country, as even a conventional degree of dispersion would demand an uneconomic expenditure of missiles to cripple it. This is a general conclusion. There could be occasions when the enemy in an attempt to gain time, might try to disrupt the advance by striking at HQs and other key targets if he had sufficiently accurate information, but it seems probable that the risk is least at this stage of the advance.

43. The use of nuclear weapons to help the advance in this phase is hard to foresee. Opportunity targets may present themselves to air reconnaissance but no systematic use of the weapon is apparent. Advancing troops will operate on broader fronts than under conventional conditions so that a sizeable proportion of the force is operating in a zone of relative nuclear immunity when contact is made but otherwise the technique of this phase of the advance is not changed.

The following-up of a deliberate withdrawal

44. On the supposition that the enemy will be withdrawing through a series of delaying positions based on obstacles, this phase is considered under two headings:—

(a) Operations between delaying positions.

(b) Breaking through delaying positions.

45. Between delaying positions it is again unlikely that there will be opportunities to use the weapon in close support of advancing troops. The battle will be too fluid for either commander ever to know enough in time to risk using the weapon. Its use in depth is likely to be more profitable; by the defender, to restore a situation which is getting out of hand, and by the attacker, to interdict the next obstacle belt and disrupt the enemy's withdrawal across it.

46. The nuclear weapon can provide the means to break rapidly through minor obstacle belts lightly held by the enemy without the need to concentrate to the extent which is necessary in conventional operations. The aim must be to unbalance the enemy by speed and to get through the obstacle before he can react effectively. There will never be enough missiles to break through

right across the front, but a certain penetration at a chosen point quickly exploited should make it a great deal easier to defeat the rest of the position by conventional means.

47. A major river obstacle or a heavily defended artificial obstacle will not succumb to this treatment. The advance will be halted and a properly co-ordinated attack will have to be laid on. The chief reason for this is that the success of a bounce crossing depends upon the rapid exploitation by mechanized troops through the nuclear gap.

Pursuit

48. In this phase the enemy is off balance. The aim will be to envelop and destroy him before he can stabilize. Nuclear weapons should be used in pursuit of this aim, to block major withdrawal routes, to disrupt control and to destroy formations which have been enveloped but which will not surrender.

Air

49. As has been shown in the other three phases of war, close air support sorties may be limited under nuclear conditions. In the advance, counter-air (including counter-nuclear) and interdiction tasks are so vital that they are likely to take priority over the requirement for close air support. It is possible, that, except in emergency, only a limited amount of air effort will be available for close air support. Air reconnaissance on the other hand will certainly be made available, but the scale of it may be well below that necessary to ensure the most effective use of the nuclear weapon. The stepping up of other sources of intelligence, and particularly the use of air OPs in this role, will help but cannot solve this problem. New techniques and equipment must be developed in this field.

Administration

50. An attempt to disrupt the advance by striking at administrative and maintenance areas is a profitable use of nuclear weapons by the defender. Even in the advance such areas are relatively static and therefore most likely to be spotted. The destruction of only a part of the administrative system will have the greatest effect on the advance where all units are working at top pressure. For this reason there is a probability that advancing troops, particularly those which have penetrated through the enemy positions, may be cut off perhaps for days from their supplies, relying either on emergency air supply or on carrying forward with them a heavier scale of reserves.

CHAPTER XIX

OFFENSIVE NON-NUCLEAR OPERATIONS

"You may do anything with bayonets, except sit on them".
Napoleon

SECTION 73.—INTRODUCTION

Scope

1. This chapter deals primarily with the daylight attack in non-nuclear operations. A separate chapter is devoted to the night attack. The use of tactical nuclear firepower by either side is not considered in this chapter, except as mentioned in paragraph 9.

Types of offensive operations

2. Offensive operations include:—

(a) The encounter battle.

(b) The quick attack.

(c) The deliberate attack.

The encounter battle

3. Encounter battles occur when opposing forces approach one another or after a break-through when one force has disengaged.

4. The objects of the attack in the encounter battle are to break through enemy advanced forces and to seize tactical features. There is considerable scope for initiative and manoeuvre but a great weight of support is not available.

The quick attack

5. The quick attack is put in to take advantage of the unpreparedness of the enemy defences. Risks must be accepted and some decentralization is necessary. The need for speed may cut the time available for reconnaissance. Speed will be obtained by having a well-established procedure and a simple plan of attack.

The deliberate attack

6. Deliberate attacks are mounted against strongly prepared enemy positions, their object being to break through enemy defences to allow mobile forces to achieve victory. Assaulting troops may be restricted in their power of manoeuvre but this disadvantage is compensated by the additional weight of fire support afforded by tanks, artillery and air forces, and, sometimes, naval ships and aircraft.

Eight basic points

7. A commander must keep the following eight basic points in mind when making his plan of attack:—

(a) The attack must be organized in depth.

(b) The Start Line must be secure.

(c) The attack must be supported by the maximum firepower available.

(d) The assaulting Infantry and tanks must keep close to the supporting fire.

(e) The impetus of the attack must not be allowed to die down.

(f) Reorganization must be rapid to ensure that ground captured is held.

(g) Supporting weapons must be moved forward quickly to help reorganization.

(h) Ground between the opposing FDLs must be dominated effectively after reorganization.

Definitions

8. *(a) Assembly area:* the ground allotted to a unit for occupation before a further move. The area is usually selected from the map. The battalion is responsible for signing the area. A good assembly area is free from enemy observation and harassing fire and has good entrances and exits for transport.

(b) Forming-up place (FUP): the place where a unit adopts its battle formations before advancing to its objective. It needs to be easily recognizable; well signed; lit, if necessary; and not under enemy observation or aimed flat trajectory fire.

(c) Start Line: the line which the assaulting troops cross at H hour. It must be clearly recognizable. It may be artificial, ie. taped, or natural, eg. a hedgerow or road. It should, if possible, be at right angles to the line of advance and must be secure from enemy interference.

(d) (i) *H hour:* the time at which the assault troops cross the Start Line. All timings given are in relation to H hour.

(ii) *K hour:* when the attack is in two phases, K hour may be used also. This is the time at which the assault troops cross the Phase Two Start Line. It is used when it is hard to determine the exact time for this in relation to H hour.

(e) Phases: the initial attack on the forward enemy localities and the subsequent passing through of fresh troops to maintain the momentum of the attack each constitute a separate phase in the attack.

(f) Assault companies: companies detailed to capture objectives in each phase.

(g) Reserve companies: those detailed in the role of battalion commander's reserve. This is the means by which he deals with the unexpected and influences the battle once the attack has begun.

Comparison with nuclear operations

9. The power of the nuclear weapon is absolute and the successful explosion of a well-directed nuclear weapon can itself be tactically decisive. In non-nuclear operations the firepower developed by conventional weapons is so much less that the destruction of the enemy almost always depends on the physical arrival upon the objective of tanks and Infantry. The enemy may stand his ground until he is physically assaulted in this way.

SECTION 74.—PLANNING THE ATTACK

Appreciation

10. Having issued a Warning Order, the battalion commander may wish to be alone for some time to consider the results of his reconnaissance and to make his appreciation and outline plan. He should subsequently call in representatives of his supporting arms for advice.

11. The battalion commander has four main sources of information to help him in making his appreciation:—

(a) The information collected by his Intelligence: patrol reports, air photographs, air reports and defence overprints.

(b) The latest information received from brigade HQ.

(c) The officers of other arms and units supporting him in the attack.

(d) The reconnaissance platoon.

12. He will need to consult all these sources before making his detailed plan. This plan must be the logical conclusion reached after considering the factors, the various courses open to himself, and the likely enemy reactions.

13. The more important factors which have to be considered in his appreciation are:—

(a) *Enemy:* location and strength.
(b) *Ground:* including obstacles.
(c) *Assessment of tasks,* including available fire support.

Points to be decided

14. The following are the main points which the battalion commander must decide in making his plan:—

(a) Phases of the attack and allocation of objectives.
(b) Attack formations in each phase and organization of the battalion into assault and reserve companies.
(c) Allocation of APCs, if available.
(d) Selection of assembly area, FUP and Start Line.
(e) Method of crossing obstacles.
(f) Boundaries.
(g) H hour: also K hour when required.
(h) Movement plan for each phase of the attack.
(j) Exploitation.
(k) Reorganization, including the move forward of F echelon transport.
(l) Air support and availablity.
(m) Artillery support.
(n) Tank support: allocation of tanks, grouping and tasks.
(o) Roles of reconnaissance and assault pioneer platoons.
(p) Fire plan: the co-ordination of the fire available from artillery, tanks and company support weapons.
(q) Engineer support.
(r) Administration.
(s) Control of the battle.

Phases of attack

15. As a result of his appreciation, the battalion commander will decide how many phases will be needed to maintain the momentum of the attack through the objective allotted to his battalion.

Attack formations

16. In each phase, companies are termed *assault or reserve.* The allocation of assault and reserve companies depends on the estimate of the resistance to be overcome. At least one reserve company should be made available for each phase of the attack.

Allocation of APCs.

17. The advantages given by the use of APCs are:—

(a) Increased depth in the attack when working with tanks.

(b) Protection against shell and small arms fire.

(c) Speed.

18. Detailed arrangements must be made for mounting normally in the assembly area. The dismounting area must be as near the objective as is feasible to take full advantage of the APCs. It may be possible to drive onto and through the objective but this is hardly an attack. If an APC can drive onto an objective, so can a tank, with a less risk of casualties. The move round to a dismounting area must be carefully co-ordinated with the supporting tanks and the fire plan.

Assembly area

19. This should be secure; concealment from enemy observation is the prime requirement. Its distance from the forward areas may be anything from one to five miles, but for an attack on foot, is normally between one and two miles. The assembly area should be reconnoitred by a party from the unit and areas allotted to the various sub-units and supporting arms.

FUP and Start Line

20.*(a)* The FUP should be out of view of the enemy and clear of his likely DF tasks.

(b) The move to the FUP must be carefully planned: there is always considerable danger of casualties from enemy DF and time spent in the FUP must be kept to a minimum.

(c) There should be no halt on the Start Line.

(d) The Start Line should be square to the objective and, if possible, should follow a natural feature such as a hedgerow or track. The laying of tape, if necessary, is the responsibility of the intelligence section.

(e) If the Start Line is not secure, a skirmish for it may develop for which the fire plan is not designed, consequently the deployment of assaulting troops may be seriously delayed; co-ordination will be disrupted and the whole attack could fail.

(f) The Start Line should be firmly held by troops other than those of the attacking battalion and it may be regarded as the firm base for the attack. Should the battalion have to secure its own Start Line, a preliminary operation will have to be carried out by a company, adequately supported, before the main attack is launched.

(g) Tanks may share the same FUP as the Infantry they are supporting. In this case, timings of arrival, formations and the effect of noise and dust must be considered. The decision as to whether tanks or Infantry move in first needs careful thought.

Method of crossing obstacles

21. The main types of obstacle to be encountered are rivers, wire and minefields. Detailed planning is needed to overcome these obstacles.

Boundaries

22. Boundaries must be laid down. They should follow natural features which can easily be recognized. The advantage of this more than offsets the fact that one company may have rather more to do than its neighbour.

Movement plan in the attack

23. The battalion commander must plan in detail and work out timings:—

(a) For the move of the battalion:—

(i) From the assembly area to the FUP and the Start Line.

(ii) From the Start Line into the assault.

(b) For fighting through the objectives and for exploitation.

Selection of objectives

24. It is seldom possible to locate all enemy positions accurately. Objectives should therefore be selected, the capture of which would most embarrass the enemy and place our own troops in the best position for subsequent offensive operations. Care must be taken to match troops to the size of the objective: a wide objective might need three assault companies, in which case it is probably more than a battalion task. Alternatively, an enemy position on a reverse slope may have to be attacked in great depth. The amount of fire support available will also influence the selection of objectives.

Exploitation

25.*(a)* The assault is the levering open of the enemy positions and exploitation must follow. Exploitation is the means by which the full benefit of the hard fighting through the objective is reaped. Every effort must be made to advance beyond the enemy positions. Such a movement upsets enemy plans for counter attack and forces him to more detailed reconnaissance to establish the extent of the penetration of his front.

(b) In order to conform with higher plans, the extent of exploitation by a battalion, particularly in the early phases of the attack, may have to be strictly limited and purely local but the principle of exploitation must be firmly established in everyone's mind.

(c) In the event of unexpected successes, the battalion commander must use his own initiative to seize tactical features ahead of his original task. Such action may well produce important results and, conversely, failure to do so may enable the enemy to re-occupy and defend the ground he previously gave up.

Reorganization

26. Reorganization is the process by which detailed control of sub-units is regained and by which the battalion is firmly established in its new locality ready to repel an enemy counter-attack. The details for this vital stage must be planned and included in the operation order. The chief dangers that have to be met are heavy concentrations of artillery fire, mortar fire, multiple rockets and counter-attacks by tanks. Use can sometimes be made of existing enemy positions for quick protection. When and where this is not practical, troops must dig in quickly. Other considerations include:—

(a) *Tanks* which have been supporting the attack will act in an anti-tank role until the Infantry anti-tank weapons are sited and co-ordinated. More tanks may come forward to form the basis of the anti-tank defence, releasing those employed for the attack to their forward rally area. There they are reorganized and are then available to meet any enemy counter-attack that may develop. The battalion may be allotted one troop under command for anti-tank defence after reorganization. It may come from the tanks which support the attack or from those coming up for the reorganization.

(b) *The layout of the battalion in depth* which will be based on a framework of anti-tank guns and GPMGs (SF). To plan this stage, the battalion commander must make an appreciation of the ground off the map and from air photographs. The aim of this appreciation will be to ensure that the ground captured will be held by his battalion and supporting arms against enemy counter-attacks or subsequent attacks.

(c) *The move forward of F echelon transport* which must be included in planning: company support weapons and

reserve ammunition must reach their new positions without delay. Although company commanders will normally be responsible for calling forward their own support weapons and reserve ammunition, sometimes it may be necessary for them to be moved forward under battalion arrangements.

Air support

27. The amount of air support will depend on the degree of air superiority that has been gained and maintained. Primarily, the most useful help the air force can give is to prevent effective interference by enemy aircraft. Other forms of air support are:—

(a) Bombing using heavy bombs with sensitive fusing.

(b) Close air support rockets, cannon fire and other devices.

Fire support

28.*(a) The amount of fire support available* will largely influence the tactical plan for the number of targets which can be engaged at any one time may limit the choice of objectives for each phase.

(b) Fire plans: the object of the fire plan is threefold:—

(i) To reduce interference with the mounting of the attack.

(ii) To neutralize enemy weapons during the attack.

(iii) To ensure that objectives once taken are held.

(c) Planning: to make full use of all his supporting fire, the battalion commander must understand the characteristics of the various weapons. He will be advised by their commanders and should, in general, tell the latter where and when they must fire and then leave them to work out the details for him. The fire plan must be designed to cover the movement plan of each phase and must concentrate on dealing with the enemy threatening the advance at every moment of the attack.

(d) The move from the assembly area to the Start Line

(i) Blind the enemy with smoke to cover movement: obscure likely enemy OPs.

(ii) Deception with HE or smoke on other parts of the local front.

(iii) Engagement of enemy weapons, in a strictly local sense.

(iv) Any neutralization of targets considered advisable.

(v) Silent policy may be best hope of achieving complete surprise.

(e) Assault fighting through the objective, and exploitation

(i) Fire will first deal with the enemy on the near edge of the objective and can then be lifted to neutralize enemy positions in depth. At the same time, engagement of enemy weapons must continue.

(ii) This fire can take the form of concentrations on known enemy localities, smoke screens to blind enemy positions, on call targets, or a combination of any of these.

(f) Reorganization. DF tasks for artillery and mortars to break up enemy counter-attack must be laid down beforehand and corrected as soon as actual dispositions on the ground are known.

Tank support

29. Tanks support Infantry in the attack by engaging opportunity targets. They move by tactical bounds from fire position to fire position, and manoeuvre as necessary to destroy by fire any enemy positions disclosed: movement is at best tank speed. During reorganization, tanks will act in an anti-tank role until anti-tank guns are in position.

GPMGs (SF)

30. These weapons can give valuable sustained fire support during the assault and this may well be the task given to the follow-up companies. Assault companies require their GPMGs (SF) to move forward quickly to cover the companies while they are reorganizing on the objective.

Anti-tank guns

31. The main task of these weapons is to help hold ground won.

Mortars

32. Mortars may often be grouped to support a battalion attack so that the most satisfactory co-ordination and control of potential mortar fire power is achieved. The battalion commander's decision to group his mortar sections must be balanced against the need for dispersion to overcome vulnerability from enemy counter-bombardment.

33. A possible course is for the battalion's mortars to be grouped into two platoons each of four mortars. One platoon will carry out the fire plan, while the sections of the other platoon will be immediately available to engage opportunity targets called for by mobile fire controllers moving with the assaulting companies. The fire of these on call sections may be superimposed on other targets when not under the control of the MFCs.

34. When this course is adopted, or when any grouping of mortar sections takes place, one of the support platoon commanders, preferably from a reserve company, will be required to command the centralized mortars, and act as overall mortar fire controller. He will also be responsible for controlling any redeployment of mortars on reorganization so that some mortar DF is always available during this stage.

Specialist platoons

(a) Assault pioneers may be wanted where there are obstacles to cross or minefields to be reconnoitred.

(b) The reconnaissance platoon may be needed to watch an open flank or for patrol tasks during exploitation and reorganization.

Engineer support

36. The main engineer task in the attack is to open communications and keep them open during all phases. Engineer intelligence will be essential before planning the attack. Engineers will need to accompany Infantry patrols to get information; at times engineer patrols may themselves be advisable.

Tasks peculiar to the attack include:—

(a) Reconnaissance of obstacles.

(b) Breaching of minefields.

(c) Overcoming obstacles such as anti-tank ditches.

(d) Construction and maintenance of routes forward.

(e) Normal routine tasks such as provision of stores and development of water points.

Medical

37. The number of orderlies allotted to companies will only be sufficient to carry out immediate first aid. Casualties are evacuated more quickly if the medical team is kept as concentrated as possible during early stages; the medical officer can then quickly put into operation a plan for collection and evacuation of casualties to suit the situation as it develops.

Control of the battle

38.*(a)* Control of the battle rests with the Commanding Officer and the company commanders at their respective levels. They must have:—

(i) The most up to date information of its progress.

(ii) The most efficient means available to pass the information on to those concerned, including their immediate superiors, and given the necessary orders to achieve the aim, in spite of the changing situation.

(b) The Commanding Officer achieves this control:—

(i) By good communications.

(ii) By positioning himself so that he can observe progress and can intervene personally when necessary.

(c) Good communications are ensured by establishing an HQ possibly on a reduced scale, well before the battle starts. This HQ should:—

(i) Be well sited for good communications.

(ii) Be concealed.

(iii) Have good observation.

(d) It may be necessary for the command post to be moved forward so that the Commanding Officer can continue to observe progress and be in a position to intervene in the battle.

(e) The Commanding Officer should only leave his observation post during the active phase of battle, when he considers that his presence will directly influence the outcome of the attack.

(f) As early as possible on reorganization battalion HQ, again possibly on a reduced scale, will move forward to its pre-arranged reorganization location.

Section 75.—EXECUTION

The move to the FUP

39. The route or routes to the FUP from the assembly area must be clearly marked and guides rehearsed in their duties. The FUP itself must be easily recognizable. The order of movement from the assembly area should preclude companies becoming intermingled or having to pass through each other. At the FUP, companies, platoons and sections will be formed up square to their objective in the formation in which they will advance.

The assault companies

40. Leading troops move forward from the FUP at such times as will enable them to cross the Start Line punctually at H hour. Leading troops must approach to within 100 to 150 metres of our fire concentrations. Only by do doing can they take full advantage of artillery support and assault the enemy before he recovers from the shelling.

41. The Commanding Officer may have to detail reserves to mop up any posts which the leading troops pass over. Artillery concentrations must be planned to allow time for forward companies to destroy all enemy posts on their front. Enemy positions holding out on the flanks must not cause troops to weaken in their determination to advance.

42. Flank protection in the initial stages of the attack can usually be secured by the action of units already in the line or through which the battalion is attacking. The use of mortars is valuable for this purpose and smoke may be used. As the attack reaches greater depth, the battalion commander will have to make further arrangements for flank protection. His own company mortars and GPMGs combined with supporting tanks should achieve this but it may be necessary to establish GPMGs and anti-tank gun posts on the exposed flank or flanks of an attack.

43. Once the enemy FDLs have been cleared, the difficult task of fighting through the objective begins. Infantry will fight their way forward using their own weapons. If tanks are supporting the attack, Infantry will destroy enemy anti-tank weapons, while the tanks will support by gun fire and machine gun fire. Forward companies at this stage may also expect to have call on artillery support against unexpected targets through FOOs. Platoon commanders and NCOs will exert their powers of leadership and anticipation. Company commanders will influence the fight by using their reserves, their mortars and by their co-operation with supporting arms.

The reserve company (or platoon)

44. This is the means by which a commander can influence the battle by:—

(a) Exploiting success.

(b) Strengthening the assault.

45. In either case, the commander must make a rapid appreciation, always bearing in mind that he should not reinforce failure. He will have to decide what support must be given to his reserve and he must allow time for the sub-unit commander to issue his own orders. If the advance is being held up by unexpectedly

strong opposition, the timings of the later stages of the artillery programme may have to be altered. Arrangements to meet this contingency will have to be considered in planning.

Reorganization

46.*(a)* Company commanders must be quick in going round their platoons to co-ordinate the defensive layout. Reconnaissance and digging parties for anti-tank guns, mortars and GPMGs then get to work immediately.

(b) The battalion commander, having approved a site for his HQ so that the command post may be prepared and communications arranged, will make a rapid appreciation of the ground. He should have with him representatives from artillery, tanks and sometimes engineers, as well as from specialist sub-units. A decision will then be made as to whether any alterations to the original plan are necessary. Having co-ordinated the DF tests and anti-tank defence, the battalion commander can visit his companies. Apart from adjusting the defence between localities, the Commanding Officer's presence at this time will have a most heartening effect amongst the troops. All platoons should be visited. Time away from his HQ for this purpose will be very well spent.

(c) All officers and NCOs must be energetic and make men dig in rapidly.

(d) Small patrols will be sent forward to give local protection.

(e) As soon as the position seems secure, F echelon groups should be called forward to meet their guides. F echelon transport, when no longer required, will be guided back to its selected area.

(f) Casualties will be collected and cleared by stretcher bearers. A systematic search of the battlefield should be made to make certain no wounded man is overlooked.

47. When reorganization is in hand, the battalion commander must consider his future action. After an attack, a tendency to do nothing is the natural reaction and steps must always be taken to counteract this. The battalion commander has two main tasks: to ensure that his position is secure and to prepare for a further advance. Although his battalion has become temporarily static an aggressive attitude to maintain this initiative must dominate. To prepare for a further advance, the battalion commander must collect information by personal reconnaissance and by sending out reconnaissance patrols and using the recon-

naissance platoon. This action after an attack is most important but is sometimes neglected. It calls for firmness and imposes an additional physical strain on officers and men.

CHAPTER XX

NON-NUCLEAR OFFENSIVE OPERATIONS AT NIGHT

SECTION 76.—TRAINING

Introduction

1. Well-conducted night operations usually achieve results out of all proportion to the casualties sustained and the ammunition expended. Such operations cannot be efficiently carried out unless much time and effort have been devoted to training the individuals, units and formations in preparation for them. The adverse air situation which may be expected in any future war and the relative reduction in artillery support oblige us to operate largely at night. High priority must be given to training for night work. Frontal assaults on predictable axes at night will only be possible against weak opposition. It is necessary to manoeuvre in the dark to achieve surprise and gain objectives calculated to unbalance the enemy. This entails long approach marches to outflank or penetrate between positions by infiltration tactics. For the effective execution of these tasks certain minimum training standards must be achieved.

Individual standards

2. All individuals in the battalion must be capable of:—

(a) Moving quickly and silently across country at night.

(b) Negotiating minor natural or artificial obstacles, on foot or in vehicles.

(c) Firing and maintaining their individual weapons at night, with and without artificial illuminants.

(d) Applying simple first aid in the dark.

(e) Night orientation, using natural aids such as wind direction, the position of the stars and the moon, and the intelligent use of natural and artificial landmarks.

(f) Making the best use of available illuminants and reacting to the enemy's illuminants in such a way as to deny him the best use of his.

Sub-unit standards

3. All sub-units and sub-sub-units must be practised in:—

(a) The use of all formations likely to be employed at thnig, including changing from one to another.

(b) Initiating and understanding all kinds of signals, sound, visual and touch, by night.

(c) Executing all relevant unit SOPs by night.

(d) Covering long distances in darkness, urging all available navigational aids to keep a planned course.

(e) Maintaining control during such moves over different types of ground.

Battalion standards

4. Each Infantry battalion must draft SOPs covering all foreseeable night operations which may have to be undertaken. Movement, deployment, navigation, communications and control call for particular attention and must be practised until efficiency is achieved.

SECTION 77.—AIMS, METHODS AND OBJECTIVES

Aims of offensive night operations

5. Offensive night operations may be undertaken to:—

(a) Take advantage of a tactical situation which is unlikely to last until the next day.

(b) To minimize effects of the enemy air effect.

(c) To achieve surprise.

(d) To minimize the effect of enemy aimed or controlled fire from small arms, mortars, tanks or artillery.

(e) To maintain momentum.

(f) To seize ground vital to daylight operations the next day.

(g) To reduce the possibility and effect of enemy tank counter-attack.

(h) To deny the enemy observation which is his by nature of the ground.

Factors making for success

6. Three main guiding principles for night operations are:—

(a) A simple plan.

(b) The best possible reconnaissance and use of all available source of information.

(c) Detailed preparation.

7. Control by night is more difficult than by day. Tactical considerations, distances and ground may call for multi-phase plans and complex manoeuvres but each phase must itself be kept simple if control is to be maintained. The passing of one company through another is acceptable by day but at night might lead to confusion and must therefore be avoided.

8. The reconnaissance to be aimed at is visual daylight reconnaissance by commanders down to section level, including supporting arm equivalents. Physical ground reconnaissance should be made the previous night, if time allows. This may be precluded by tactical urgency, the distance to be covered to reach assaulting positions, and the topography. This may make it necessary to rely on indirect reconnaissance, using maps, air photographs and physical air reconnaissance, if the air situation permits. Make use of every other source of relevant information in the planning stage.

9. After the plans have been made the fullest possible briefing of all concerned must be carried out. Models are a great help for this. Decide upon relevant SOPs and, if necessary, practice these. The aim of time appreciations should be to send every member of the unit into the operation knowing both what is expected of him and how his role fits in to the overall plan.

Types of night attack

10. Night attacks fall in to two main categories, the difference between them being in the nature of the approach march:—

(a) The noisy attack: uses all available fire support to cover the assault, as in daylight attacks.

(b) The silent attack: used to achieve surprise. It is launched silently but with pre-arranged fire support on call which is opened when surprise is considered lost.

11. In both types of attack the aim is to maintain surprise as long as possible, thereby cutting down the time available for enemy reaction. The degree to which surprise can be maintained is usually the factor which determines whether attacks are to be noisy or silent. Noisy attacks are used when the crossing of natural or artificial obstacles or complex enemy defences preclude the maintenance of surprise. In such cases deception measures must be planned to conceal the scope, direction and timing of the assault.

Objectives

12. Factors which affect the choice of objectives at night are:—

(a) Impaired visual contact and the difficulties of keeping control.

(b) Difficulties in the effective application of unplanned fire support requested at night.

(c) Fire support within sections and between platoons cannot be used as effectively by night as by day.

(d) Orientation and recognition of ground is more difficult at night.

13. All these factors obviously affect the width and depth of objectives chosen. Careful consideration must also be given to the plan for reorganization, and the necessary orders for this phase must be included.

SECTION 78.—NIGHT MOVEMENT

Navigation at night

14. The following aids help Infantry to keep on course at night:—

(a) The compass: completely reliable if regularly checked, unless freak geological conditions exist.

(b) Pacers, for measuring distances on foot, and mileometers for use in vehicles. The performances of both must be checked for accuracy over different types of ground and the pacer or vehicle must become a permanent part of the navigational team.

(c) Tracer fired from any weapon can be used to indicate direction.

(d) Preplanned artillery HE concentrations can be fired on call for bearings to them to be taken. Star shell can be fired to illuminate pre-determined reference points.

(e) Flares can be dropped from aircraft to help in ground recognition.

(f) Navigation by the stars with the aid of the compass is simple if understood and practised; tables are available showing the swing of the constellations in the heavens.

15. The success of night operations depends on accurate navigation and it is wrong to rely only on a central navigation party vulnerable to direct and indirect enemy action. The failure of such a party to function effectively would hazard the whole force. Navigation must be carried out at all levels at which the compass is held.

Planning night movement

16. The advent of radar and infra-red devices greatly affects the routes selected for night movement, despite their respective limitations of range and line of sight. The use of ground and screening from view afforded by buildings and vegetation now assumes the same importance as by day. The choice of locations for the assembly area, FUP and SL are also effected. Conversely the aid these devices give in navigation and marking or identifying routes must not be overlooked. Planning will also be influenced by the relatively simple detection and pin-pointing of both our own and enemy devices.

17. Navigation and control are of even greater importance when long distances have to be covered. Routes must be selected within the limits imposed by enemy radar, from one identifiable natural or artificial landmark to another. If such landmarks do not exist they must be created, using guides, lights, tape or a combination of some or all of these. The definition and location of landmarks, their bearing and distance from each other, must be recorded and issued in orders down to platoon commanders.

18. Halts should be made at selected navigational bounds, especially those where a change of direction is to take place. Here a physical check of men is made and formations adjusted as necessary. Orders for these halts and for all-round protection during them must be issued before the move begins.

19. Bounds may be unnecessary where moves up to the SL are within our own FEBA and where the advance from the SL to the objective is in a straight line. The problem in such cases is simplified to keeping direction, using any suitable combination of navigational aids.

Formations during night movement

20. The best formation to adopt at night on any particular piece of ground is that which satisfies the tactical requirements and at the same time best allows control to be maintained. A greater degree of concentration is acceptable at night than by day. Single file may be dictated by very close country but in this formation a battalion is spread over thousands of metres and takes longer to pass a given point than when in any other formation. Although control on the axis is simple in single file, lateral reaction by sub-units is very slow. File only halves this problem. Movement by sub-units on adjacent and parallel axes may be the best answer, where this is practicable. This principle applies equally within sub-units.

Protection during night movement

21. Bodies of troops moving outside our own FEBA need protection from the front, flanks and rear and this may be provided by:—

(a) A screen of moving patrols to the front, flanks and rear of the main body; these move on related courses to the central axis.

(b) A screen of static patrols located on either or both flanks, the main body being responsible for its own mobile protection of front and rear.

(c) Reliance on immediate-action drills within the main body to counter enemy action from any direction.

(d) A combination of these alternatives.

22. The provision of static or mobile patrols is expensive in manpower. To carry out their task they need indirect fire support and radio communications for each patrol. Their initial deployment and subsequent recall to pre-determined RVs must be planned in detail.

SECTION 79.—BATTLE PROCEDURE

The aim

23. The aim of battle procedure for offensive operations at night is the same as it would be by day: to ensure that each man carries out his appointed task at the right place, at the right time, and knowing exactly what he has to do.

The main difficulties

24. These are navigation, already discussed in some detail, recognition of routes and positions to be taken. up. Movement light is no longer available. Moonlight is affected by the weather as well as its natural phases. The worst case should be considered and this is darkness without a moon. Under these conditions full use must be made of artificial aids but training should be carried out with just enough aids to enable units to operate efficiently, and these aids should be those permanently available within unit resources. These are torches and tape. Shutters to fit over torches to produce different coloured lights, arrows pointing left, right, up and down, letters or numbers in various colours, can all be made up inexpensively under unit arrangements. Trip flare pickets make useful light standards.

Marking of routes

25. The marking of unit routes within our own FEBA may be elaborate, entailing the use of guides, torches and tape. Outside our own FEBA marking should be resorted to only where the absence of natural or artificial landmarks makes navigation difficult, or in places where the going is particularly bad. Because of its significance such marking should be backed up with static guide parties to ensure correct interpretation and to prevent displacement by accident or enemy intent.

Marking the assembly area, FUP and SL wthiin the FEBA

26. This presents no particular difficulties. Units must include all details in their SOPs and these must be known and understood by all ranks. In a four-company battalion an FUP is laid out for four companies, the command post and battalion HQ. Lights and tape makes forming up relatively easy but is a formidable task for the harbour party responsible for layout.

Marking an FUP and SL outside the FEBA

27. The directional guides within an FUP are the centre line and SL itself. Security considerations rule out the elaborate use of lights and tape during infiltration movements or flanking attacks involving long night marches through or round the enemy FEBA. It will be necessary to plan an easily recognizable RV near the selected FUP and SL. In the absence of natural or artificial features to make this RV easily identifiable, it must be marked in some appropriate way. At this RV sub-units will be met by the Harbour Party and guided up the centre line of the FUP to their appointed place, on the SL in the case of assault troops, or in depth if reserve troops. The marking to help in this forming up should be as elaborate as time and security allow. The simpler the lay-out the higher the standard of training of the troops taking part must be.

Attacks mounted within our FEBA

28. Marking of the assembly area, FUP and SL is done by the Harbour Party.

Attacks mounted outside our FEBA

29. If the Harbour Party is to be used it must be constituted before the approach march and move under command of the sub-unit detailed to protect the FUP and SL. During the approach march the Harbour Party must be organized as a fighting element able to take a cohesive part in any action which has to be fought during the march. The fighting efficiency of such a scratch unit is doubtful, and to overcome this the laying out of an FUP and SL, based on unit SOPs, should become part of each sub-unit's training. All rifle companies should be capable of laying out a battalion FUP and SL. Every rifle platoon should be able to lay out a company FUP and SL. Protection should be undertaken by two platoons and two sections respectively, the third being responsible for marking and guiding duties. Additional platoons/sections must be attached to the marking company/platoon if more protection is needed. During the approach march this company/platoon would move one navigational bound ahead of the main body and should be ready to receive the main body when it arrives.

SECTION 80.—PLANNING

Choice of FUP and SL for offensive operations at night

30. For attacks mounted within the FEBA normal considerations of tactics, ground, radar, infra red, enemy artillery, mortar

and patrol habits affect the choice of FUP and SL. For attacks mounted outside the FEBA these factors, together with likely enemy local security measures, affect the distance at which the FUP and SL are sited from the objectives. They must be sited outside these areas in which the enemy is in the habit of locating his standing patrols.

Timings

31. The main factors affecting the timings in a night offensive operation are ground, the degree of darkness and the distance to be covered. Supporting fire will be related to H hour, the time the assault crosses the SL, in both noisy and silent attacks.

32. Where attacks of either kind are mounted outside the FEBA and the FUP and SL, for security reasons, are a long way from objectives, the greatest care is necessary with time and space calculations. If only indirect reconnaissance is possible it may be impracticable to fix an accurate H hour before the approach march begins. In this case orders may have to be given for artillery support to start when the FUP has been reached. If ground features or enemy jamming are likely to affect radio, this method would be unsound and a large time buffer would be necessary.

Infantry mortars

33. The grouping and operation of mortars by night and day differ in that:—

(a) It is hard to correct mortar fire at night and to avoid casualties to our own troops adjustment of unregistered targets is slow.

(b) Registration in daylight is desirable before a night attack is to be supported.

(c) Base-plate positions should either be surveyed in daylight or be placed close to recognizable natural or artificial features which are marked on maps, if predicted shooting is to be made easier.

(d) When operations are mounted well in advance of the FEBA and the range limitations of the mortar preclude a base-plate position within it, mortars must be man-packed with the assaulting force. Carriage of ammunition also becomes a unit problem. The 81 mm mortar ammunition comes in plastic containers holding two bombs and equipped with a carrying handle and shoulder strap. Ammunition can be carried by the assaulting force and dumped at the base-plate position on the line of march. Prior registration is

impossible in these circumstances and base-plate positions must be related to features marked on the map.

Anti-tank

34. A clear anti-tank plan must be included in the orders for reorganization. As company anti-tank guns will not be available until F echelon comes forward, defence against tanks must initially be based on shoulder-controlled weapons, GW and tanks, if these take part in the assault. The role of company anti-tank guns must be part of the plan which they fulfil after they arrive.

35. Section or detachment commanders must accompany in the assault the Infantry sub-unit in whose area their detachment is to be sited during reorganization.

36. Orders for the control of illumination must cover the illumination of tanks targets.

SECTION 81.—USE OF TANKS AT NIGHT

Introduction

37. Nowadays nuclear and air threats tend to compel ground troops to confine their movements and tactical operations to the hours of darkness. Soviet tank troops spend more than a third of their training time in training for night operations and it is obvious that our own tank forces must be trained to operate effectively at night to meet this threat.

Advantages of using tanks at night

38. Besides reducing the enemy air threat, the use of tanks at night has a considerable morale effect on the enemy. Even a few tanks may achieve this for in darkness the noise of tank movement is deceptive as regards numbers and direction. The feeling of uncertainty to which tanks give rise at night can be great, especially amongst inexperienced troops.

39. Advantages of using tanks at night in particular phases of war are:—

(a) *Advance and pursuit:* speed and momentum can be maintained and the enemy prevented from reorganizing.

(b) *Attack:* the shock action of tank fire power at relatively short range may prove decisive and the tanks will also be available in the reorganization phase and of great value to meet immediate counter-attacks.

(c) *Withdrawal:* tank mobility and fire power is ideal for covering a night withdrawal if adequate sources of illumination are available.

(d) *Defence:* tanks can be used either in a counter-attack or anti-tank role, again provided that adequate illumination is available and close Infantry support can be provided.

Limitations

40. Many of the problems arising are inherent in all night operations but those which particularly relate to tanks are:—

(a) The limited range of vision of both commander and gunner.

(b) The difficulty of driving and keeping direction and station.

(c) Control.

(d) Liaison with accompanying Infantry.

(e) Vulnerability to enemy short range shoulder-controlled anti-tank weapons.

(f) Protection of isolated tanks.

Night movement

41.(a) *Non-tactical:* presents few problems; speed will be slower than by day and density greater; the only additional requirement is training in night driving without lights and map reading in the dark.

(b) *Tactical:* cross-country movement in fluid operations does give rise to problems; there are two basic methods of crossing country at night without driving lights or infra red:—

(i) Pre-positioned direction lights.

(ii) Compass bearing.

Pre-positioned direction lights

42. This method is obviously only practicable behind the FEBA or in areas where the enemy is very thin on the ground. It entails:

(a) A reconnaissance party, usually from the regimental reconnaissance troop, making a detailed reconnaissance of the route and preparing a route report.

(b) Detailed siting of lights during this reconnaissance.

(c) Placing the lights in position in pairs after dark: the idea is that after passing through one pair of lights, the next pair should be visible on the skyline. The lights must not be too bright and should not be visible to the enemy either from the ground or the air.

(d) A full briefing of the tank crews themselves; if possible each should have a copy of the route reconnaissance report.

Movement by compass bearing

43. A navigator should be appointed for each sub-unit but individual tanks commanders are themselves responsible for checking and maintaining the direction of their own tanks.

44. The route, distances and bearings must be worked out accurately from the map. If possible the prepared route should be checked through field glasses and from air photographs, if available. The squadron leader, at least, should also reconnoitre the route from the air if the situation permits.

45. Individual compasses should be checked and the variation noted when using each in the tank with the engine running.

46. The navigator troop leader on his feet should line up his tank on the bearing of the first leg of the route. He should then mount, recheck the bearing and again recheck the variations of his compass caused by running the tank engine. The compass variation should be checked again a short time after moving off. The speedometer should be checked and noted as this will be used to calculate the distance travelled on any particular bearing. The remaining tanks line up on the troop leader and the troop moves off.

47. This procedure is repeated for each leg of the route. When moving across broken country it may have to be carried out at intervals during movement along each leg.

Aids to navigation

48. These include:—

(a) The stabilizer: after the tank commander has checked the variation of his compass on the tank, he should line the gun barrel on to the bearing. The gunner then notes the bearing on his transverse indicator and keeps the gun on that bearing throughout the move. The driver also notes the position of the needle of his transverse indicator once the gun is lined up and then drives keeping the needle in the same position.

(b) Tank navigator: one tank in each squadron is to be equipped with an automatic tank navigator, based on an electrically-operated gyro compass. The navigator automatically plots on a map the course taken by the tank on which it is mounted. A computer incorporated in the equipment continually works out the actual grid reference of the tank's position.

(c) *Artillery concentrations:* these may be fired on call on known prominent points adjacent to the route, provided that the route is not too long and surprise is not sacrificed. The concentrations themselves are used as navigation checks.

(d) *Astral navigation:* all tank commanders must be trained in simple astral navigation and on clear nights should check their direction by the stars.

Aids to keeping station

49. White patches about 18 in. square may be mounted on the sides and rear of tank turrets to help individual tanks to keep station within a troop.

Night formations

50. The best formation for night movement both within the troop and the squadron is line ahead. This simplifies control and station keeping but is poor for fighting purposes. Squadrons and troops must have a standard drill for deploying quickly from line ahead formation, either when preparing to assault or if unexpected contact is made on the line of march.

Distances between tanks

51. Except in a defensive position the distances between individual tanks in a troop at night should rarely be more than 150 metres. They may be as little as 20 metres, depending on the amount of residual light present. The distance between troops in a squadron is largely governed by the amount and type of illumination available.

Moonlight

52. When the moon is full tank commanders/gunners should be able to identify and engage targets up to 500-600 metres. When a half-moon or better is shining, tanks can operate effectively without any artificial light sources.

Infra-red capabilities

53. The following capabilities can be expected from the type of infra-red driving and shooting equipment likely to be in service shortly:—

(a) Ability to drive across country at night.

(b) Ability to identify and engage targets at night.

Infra red limitations

54.*(a)* By passive use of infra-red viewers the enemy can pick up infra-red sources well beyond the range which the sources themselves are capable of reaching.

(b) Because infra red throws no shadows and produces a one-dimensional picture it is extremely hard to judge range. This has obvious limitations from the point of view of both driving and gunnery.

(c) Dust, smoke, fog and heavy rain all seriously limit the effective range of infra red.

(d) The beam of any tank infra-red searchlight must be very narrow to produce a reasonable range, and will only illuminate about one degree of arc at 1000 metres.

(e) To produce the current necessary to run an infra-red tank searchlight necessitates running the tank auxiliary generator the whole time the light is on. In defensive positions this may be unacceptable.

(f) Back scatter reduces by about 50% the effective viewing range of a tank using its own light and may necessitate the use of different tanks for illuminating and shooting.

Methods of operating infra red

55. The two basic methods are:—

(a) Active: in this case the tank searchlight or headlamps are used to provide light for driving or shooting; because of the ease with which infra red can be detected its active use must be carefully controlled at squadron level.

(b) Passive: in this instance no lights are shown by the tank but the infra-red viewing equipment is used either to pick up an enemy infra-red source or to use the illumination provided by another tank. Infra-red viewers pick up any heat source and they can be used to detect vehicle exhausts.

White light tank searchlights

56. The advantages of using white light, as opposed to infra red, are:—

(a) The light will dazzle any enemy being illuminated.

(b) It can be used in conjunction with normal viewing and sighting equipment.

57. The Chieftain tank searchlight has a dual infra-red/white light capability. Generally speaking if a white light searchlight is switched on for no more than 30 seconds at a time it is difficult

to estimate its range. The limitations on the employment of white light searchlights are similar to those applicable to infra red.

Parachute flares

58. These may be fired by Infantry 2-inch and 81 mm mortars and artillery star shells or dropped from aircraft. These methods all provide good light of reasonable duration within the respective ranges of the weapons concerned. Their use calls for special arrangements and care is necessary to ensure that besides illuminating the enemy they do not simultaneously silhouette our own tanks.

Pre-arranged direct and indirect shooting

59. Within a defensive area tanks can engage either area or pinpoint targets after dark, provided that fire positions can be occupied and registration carried out during daylight. The procedure is for the tank to register targets during the day; marker pegs are then placed in position, and the tank withdrawn, returning after dark. With the illuminated sight graticule and traverse indicator, any reasonable number of fixed-line shoots can be pre-arranged.

Section 82.—ARTILLERY SUPPORT AT NIGHT

Noisy attacks

60. Artillery support for these will be planned on the same basis as for daylight attacks. The artillery fire helps the assaulting troops to keep direction but, of course, loses surprise. For this reason timings should be adjusted for fire to begin just before surprise is expected to be lost. This will also help to conserve ammunition.

Silent attacks

61. These must have artillery support available and carefully preplanned to cover the whole advance. The types of planned support may be:—

(a) *Silent timed programme:* guns are laid on successive preselected targets related to the timings and rate of advance of the assaulting troops; if at any time during the advance artillery support is required, the response will be immediate because the guns will already be laid on the selected targets.

(b) *On-call targets:* targets related to the line of advance are preselected, as in a daylight advance to contact, and can be requested as the need arises at any stage of the operation. This is more flexible than the silent

timed programme method as guns may be superimposed on other tasks, eg, CB or noisy phases, until their fire is required; but their response will not be so quick.

(c) A compromise between these two methods may be the best solution: one fire unit is used on a silent timed programme and the other is superimposed on other tasks but on call if the need arises.

62. A request for fire during a silent attack converts it into a noisy attack, if approved it must be clearly laid down who can authorize this.

Registration

63. To obtain the best use of available artillery, daylight registration must be carried out. This must be sporadic and disguised as harassing fire if surprise is not to be prejudiced for subsequent night operations. If circumstances preclude daylight registration, careful survey and calculation of pre-selected targets will produce effective fire, but for safety reasons at a greater distance ahead of the assaulting troops. Calls for fire on impromptu unplanned targets at night present the same difficulties to the artillery as to mortars.

Fire planning

64. A night attack may be planned in phases in order to compel the enemy to spread his own artillery and mortar fire and so reduce its effect. Each phase should be simple. The allotment of available fire units to noisy, silent timed, on call of DF roles leads to seemingly complicated fire plans but the tasks in each phase must be kept simple and clear-cut. Fire support must be available for every phase of an assault as well as for DF tasks of the earlier phases, until these are no longer necessary. All DF tasks for captured objectives must be planned and issued with the fire plan before the assault. Fire units allotted to on-call tasks as first priority may also be superimposed on other noisy parts of the fire plan when not actually firing on their priority task. In this way the maximum effect can be obtained from the fire units available.

Types of fire

65. The same types are available as by day but note:—

(a) Illumination: if there is likely to be a need for illumination for navigation aids or for target acquisition this must be preplanned; it may be necessary to allot a specific fire unit for this task.

(b) *Counter-illumination:* the blanketing of enemy direct fire weapons or enemy observers using their own illuminants to cause casualties to our troops can be done by firing smoke; this also must be preplanned.

(c) *Deception:* at night deception can be achieved by the use of artillery and mortar fire; this should be planned to achieve material effect as well as deception, whenever the two aims are compatible.

FOOs

66. An FOO must have communications with the gun position if fire is to be started, stopped, required to dwell or to be adjusted. Planning must be directed accordingly and may entail special radio arrangements. FOO parties may leapfrog forward from one static position with established communications to another so that the whole advance is covered. FOO parties accompanying the assault are vulnerable. If they do not do so their subsequent escorting and linking up with the sub-units they are to support during reorganization may be both slow and difficult.

SECTION 83.—THE ASSAULT

Assault formations

67. In night attacks when the FUP and SL are within the FEBA, sub-units will cross the SL in assault formation if the distances to the objectives are short. If the SL is too far off to allow effective control of the assault formations, use must be made of a formation which can be properly controlled, and final deployment into assault formation must be delayed until the distance has been sufficiently cut down to allow of effective control during the final stage. The actual distance will be dictated by the nature of the ground and the degree of darkness.

Noise during the assault

68. Cheering, yelling and shouting battle cries during the assault may raise the morale of the assaulting troops but their effect on enemy morale is doubtful. It seems more likely that such behaviour attracts enemy attention to individual soldiers of the assault force and so increases casualties to them. An assault in which enemy posts are stalked and destroyed after a rush from close range, and which is pressed home in comparative silence has a definite effect on enemy morale, making him nervous and likely to fire at shadows and so disclose his positions.

Mopping up

69. Thorough mopping up is difficult at night. Isolated enemy posts which hold out must initially be by-passed, later contained and finally systematically reduced after the main objective has been cleared.

Reorganization

70. Planning for this stage of the attack, which is more difficult at night than by day, must be thorough and simple, the main requirements being:—

(a) Sub-units must reorganize on their objectives as soon as they have captured them, using the resources they have brought with them.

(b) Adjustments to preplanned DF tasks necessitated by the pattern taken by the battle must be effected as soon as possible.

(c) Standing and reconnaissance patrols must be sent out to give warning of enemy reaction.

(d) F echelon groups must be poised ready to join their sub-units as soon as possible. Route reconnaissance, marking and preparation must proceed concurrently with the attack. The movement forward of the echelon to advanced vehicle waiting areas along this route must proceed as far as considerations of surprise allow.

(e) If the cross-country performance of tanks makes it much easier for them to reach forward sub-units than wheeled vehicles, they should be used to carry ammunition and stores for the Infantry, as well as to provide the quickest means of anti-tank defence.

(f) Adjustments to sub-unit positions to weld a cohesive unit defence will usually be necessary at first light.

Location of the commander

71. The commander of a night operation must be located where he can best exercise control and he must take into account that:—

(a) Vision and observation are very limited at night when efficient radio communications are essential for maintaining control.

(b) He will want to study maps with the aid of lights but without disclosing his location.

(c) Both he and his radio are vulnerable to enemy action.

(d) In darkness the morale value of his personality and presence can only influence those near him.

(e) He must be far enough forward to control and co-ordinate reorganization as early as possible, but must not let his judgement be affected by being so far up as to become embroiled in local actions.

(f) Facilities are needed by the artillery battery commander/FOO and the tank squadron liaison officer.

Communications

72. Factors affecting planning include:—

(a) The line-of-sight limitation of VHF radio.

(b) The vulnerability of radios and their operators, making it is necessary to plan how to use alternative nets to re-establish communications after casualties occur.

(c) Radio operators can be heard over long distances and may be heard by the enemy: the use of line and the establishment of an A40 whisper net within a unit or sub-unit must therefore be considered.

(d) Radio silence makes control difficult and may even prejudice surprise if correctly interpreted by the enemy intercept staff.

CHAPTER XXI

CROSSING A WATER OBSTACLE

SECTION 84.—TACTICAL BACKROUND

The encounter crossing

1. It will be the aim of attacking forces to achieve a crossing of a water obstacle at the earliest possible moment. History has shown how quite small forces have created surprise and confusion by their ability to seize unexpectedly a bridge, ferries or boats or swim men and equipment across the obstacle.

2. Now with the cross-country and amphibious capability of APCs and other improved water-crossing equipment there is even greater scope for the successful encounter crossing. Commanders at all levels within the battalion must be sufficiently flexible to exploit the surprise gained.

The opposed river crossing

3. It is unlikely that a battalion will carry out an opposed crossing of a water obstacle except as part of a brigade plan.

Problems of the defence

4.*(a)* Defence works on a river line are difficult to conceal as they are often under enemy observation. Ground may be marshy and unsuitable for field defences.

(b) A river must be covered by fire if it is to be an effective obstacle. This calls for wide dispersion of the defender's forces along the river bank, particularly if it is very winding, with consequent weakening of forces available for counter-attack. The defender's main problem is therefore to strike a balance between:—

(i) Holding the river line strongly with only small forces in reserve.

(ii) Holding the river line weakly with an adequate reserve.

(c) If the defender adopts the second method it may be easy for the attacker to secure an intitial bridgehead but difficult for him to stop it being liquidated by counter-attack.

Problems facing the attacker

5. It will be necessary to clear and secure the home bank before detailed reconnaissance and planning can begin. The

attacker has the initiative and the advantage of being able to achieve surprise by attacking at an unexpected time and place: hence the importance of:—

(a) Secrecy.

(b) Deception.

(c) Speed.

6. The basic requirements of the attacker are therefore:—

(a) The detailed planning of every serial needed to cross the river or to organize or defend the rear bank.

(b) Clear orders and briefing based on sound planning and intelligence.

(c) Simplicity.

(d) Surprise.

(e) Speed and determination in execution.

(f) Rapid exploitation of success.

Preliminary training

7. Troops taking part in an assault crossing operation must be practised in watermanship and should, if possible, rehearse the whole operation by day and night.

SECTION 85.—STAGES OF AN ASSAULT CROSSING

Introduction

8. The operation will normally be divided into nine stages, some of which will overlap each other:—

(a) Reconnaissance.

(b) Appreciation and plan.

(c) Detailed planning and orders.

(d) Assembly and preparation of troops and crossing equipment.

(e) Advance to the waterway.

(f) The assault.

(g) Establishment of bridgeheads.

(h) Construction of bridges and crossing of main body of the force (reserve battalions or brigades).

9. This section considers stages *(a)—(g)* inclusive from the point of view of an assault battalion carrying out any type of assault crossing.

Reconnaissance and planning

10. Information is needed on:—

(a) Enemy defences, including mines on both sides of the river.

(b) Details about the river:—

(i) Width, depth, current, type of bottom.
(ii) Banks, height, slope.
(iii) Islands, fords, weirs, sandbanks.

(c) Subsidiary obstacles; ditches or fences.

(d) Approaches to and exits from the water for wheels and tracks.

(e) Suitable crossing places for boats, rafts and amphibians.

11. The sources of information are no different in this operation from any other: patrols, OPs, maps, air photographs, PW, etc. The engineers can normally supply fairly detailed information about rivers, which can be checked or enlarged on by patrols. Joint patrols, Infantry and tank or Infantry and engineer, will frequently be necessary. Care must be taken not to disclose the intended crossing places and reconnaissance of the obstacle may be controlled by brigade or division and patrol activity kept along the whole front as part of a deception plan.

Advance to the waterway

12. Areas used by assault troops are shown diagrammatically in Fig. 58. They are:—

(a) Concentration area: out of enemy artillery range, if possible where troops can train and rehearse for coming operations

(b) Brigade assembly area: one assembly area per brigade is usually required. Here battalion vehicles, other than those crossing under battalion arrangements, assemble before crossing under brigade arrangements, after the initial bridgehead has been secured.

(c) Battalion assembly area: one will be needed for each assault battalion, not far from the river. Here the battalion makes final preparations before moving to the FUP(s).

(d) Boat off-loading point: if the assembly area is some way from the river and it is possible to take transport forward of it before the assault without prejudicing security, a boat off-loading point is selected to which the vehicle carrying the assault boats are driven before being unloaded.

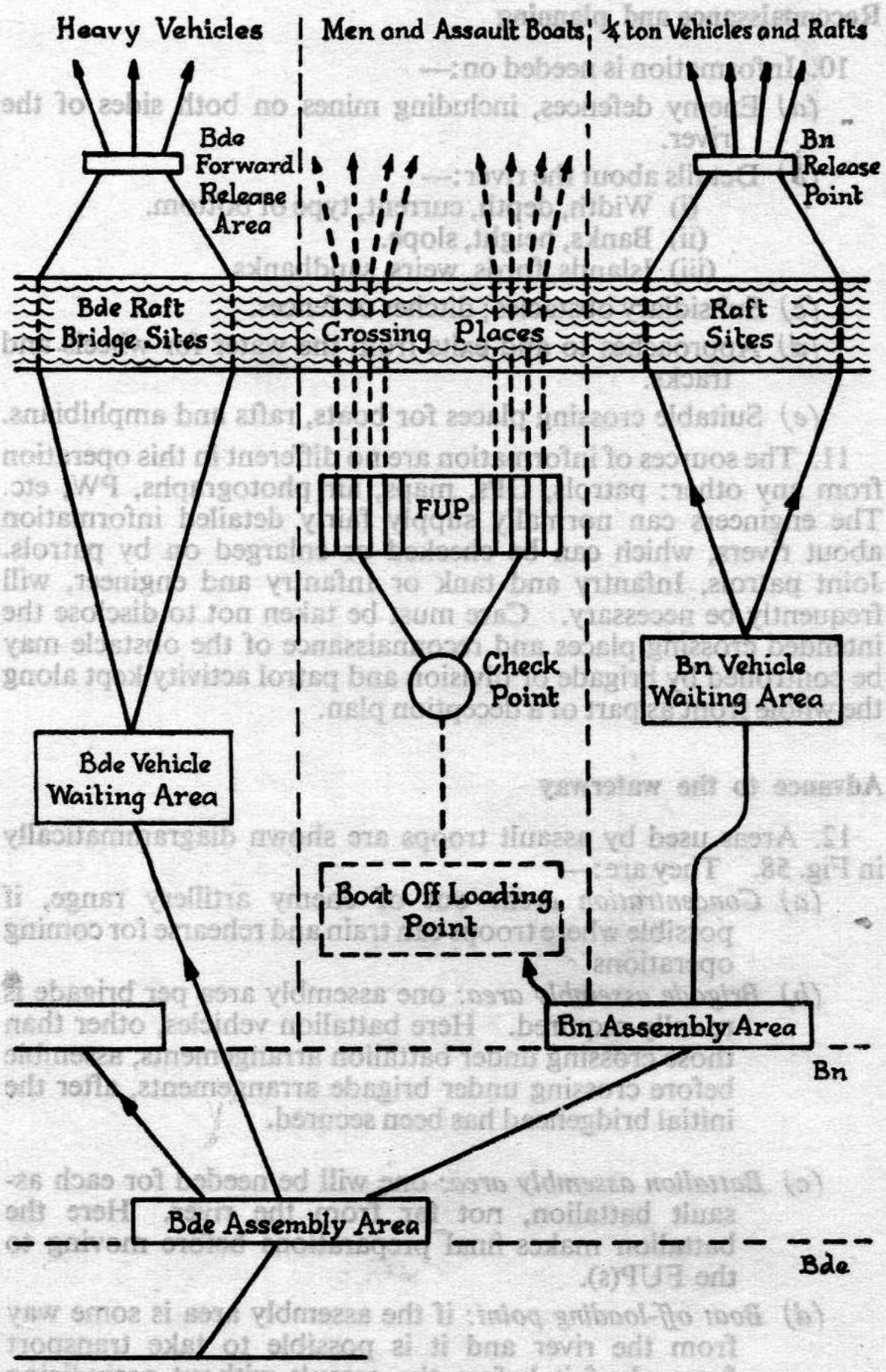


FIG. 58.—Names of areas used by assaulting troops engaged in crossing a water obstacle.

(e) *Check point:* this will ensure that companies move forward in the correct order at the right time.

(f) *FUP:* where assault troops get into their assault formations; in this case, the formations in which they enter the water.

(g) *Crossing places:* where troops put their boats into the water or where amphibious vehicles enter the water.

Vehicles

13. Vehicles of assault battalions are collected in vehicle parks near battalion or brigade assembly areas and called forward in order of priority to battalion or brigade rafts or bridges, according to their classification. The organization required includes:—

(a) *Vehicle waiting areas:* to ensure an even flow of vehicles over the bridges and ferries, it may be necessary to organize vehicle waiting areas between assembly areas and the river. These areas should be reasonably close to the river, and should not contain more than a small group of vehicles at any one time lest they present good targets for enemy artillery fire and aircraft.

(b) *Release points:* these will be organized on the far bank. Each assault battalion will normally require one, where vehicles will be met by company guides and taken to their respective reorganization areas as in a normal attack.

(c) *Brigade forward release areas*: areas at which vehicles crossing under brigade arrangements can be met by unit guides. Normally one of these areas is required per brigade.

Duties of the bank group

14. The smooth and orderly progress of the crossing depends largely upon the efficient direction and control of movement of troops and vehicles between the assembly areas and release points on the far bank. These duties are undertaken either entirely or in part by a bank group, specially formed for the operations. Usually a bank group is found by a separate unit. An assaulting battalion may have to supply some of the men needed to help in this river crossing and may sometimes have to form its own bank group.

15. The main duties of the bank group in an operation where a battalion does not find its own bank group are:—

(a) Directing and controlling movement of personnel and vehicles into and forward from assembly areas.

(b) Close supervision of the crossing, which entails the upkeep of an even flow of traffic across the river by making full use of all available bridges, rafts and crossing places.

(c) Protection of routes to crossing places.

(d) Off-loading assault equipment, and helping to manhandle it forward to the FUP.

(e) Guiding troops to the crossing places.

(f) Organizing each crossing place including protection.

(g) Operating the boats, rafts and outboard motors: ferrymen are provided for assault companies, at least.

(h) Organizing and staffing the assembly areas and other areas mentioned in Fig. 58.

(j) Organizing and staffing medical posts, recovery posts and PW cages needed near the river.

(k) Keeping the next higher commander informed of the progress of the build-up.

The assault and establishment of bridgeheads

16. The plan cannot succeed unless all ranks are absolutely determined to get over the river and to secure their allotted objectives. All ranks must be carefully briefed on maps, models and air photographs so that they can act intelligently if the battle does not go according to plan.

Flights and waves

17. Flight is a term normally used on brigade level and above. Within the battalion, normal attack terms are used: A and B Company cross at H hour, C Company at H plus 20, etc. Companies, under certain circumstances, may have to cross in two or more waves, or by shuttle service (reserve companies).

Objectives

18.*(a)* Must be limited, particularly by night.

(b) Primary objectives are those positions from which the enemy put aimed small arms fire onto the crossing places.

(c) Secondary objectives are those positions which overlook the river and from which the enemy can direct artillery fire onto the crossing places.

H hour

19. The time at which the first wave of assault boats or amphibians enter the water.

Fire support

20. This is as for a normal attack, but the following points are emphasised:—

(a) If a silent crossing is attempted, fire support must be on call.

(b) Flat trajectory weapons are useful for:—

(i) Flank protection.

(ii) Shooting in assault troops by firing from a salient to the flank.

(iii) For close protection of the crossing places.

(iv) Neutralizing enemy defences, particularly close to the far bank.

(c) Tracer fire from GPMGs (SF) is a useful aid to direction keeping.

(d) Full use must be made of the fire power of troops already holding the near bank. In particular, their anti-tank guns can provide flank protection to the intitial landings where required.

Mopping up

21. This must be thoroughly carried out by forward troops and not left to the reserve companies. By-passed enemy will continue to fight and may seriously impede both reserve companies and the rear of the troops who have gone through them. The delay imposed by mopping up in front must be accepted.

Protection during reorganization

22.*(a)* Patrols will be needed for protection while companies are digging in on their objectives.

(b) Company GPMG (SF) equipment and ammunition must be carried by the assaulting troops for pre-planned tasks on reorganization.

Anti-tank defence

23. It may be some time before anti-tank guns or tanks can reach forward companies in the bridgehead. Platoon and section anti-tank weapons are therefore needed. Anti-tank defence calls for guns to be put across as early as possible.

F echelon transport

24. Priority for crossing for most operations:—

(a) Anti-tank guns.

(b) Ammunition.

(c) Support platoon and FOO vehicles as applicable.

(d) Command, medical, signal and reconnaissance platoon vehicles.

Note: Arrangements must be made on the home and far bank for reconnaissance.

Administration

25. After a battalion has gained its bridgehead, it may be temporarily cut off by enemy counter-attack or shelling of the bridges, therefore:—

(a) An adequate reserve of all requirements, particularly ammunition must be put across the river with the assaulting troops, on the man or in F echelon.

(b) Arrangements must be made to hold wounded and PW for a time until they can be evacuated. If amphibians are being used, both may be evacuated in returning vehicles.

(c) Men must carry enough food and water to prevent either becoming a high priority requirement for 24 hours.

CHAPTER XXII

FIGHTING IN BUILT-UP AREAS

SECTION 86.—INTRODUCTION

General

1. The general principles of defence and attack hold good for operations in built-up areas but their application is affected by the special conditions. These may relate to a village, a town consisting mainly of small two-storey houses and shops, or a larger town or city with solid blocks of buildings.

2. There are three main ways to attack a built-up area: all affect the planning of the defence:—

(a) To fight through, building by building, street by street. This is expensive in manpower and time. The casualties will be extremely heavy if the town is well defended.

(b) A heavy preparatory bombardment by air forces and artillery, followed by mopping up. This is much quicker and casualties will be less. The bombardment must be extremely heavy and must be immediately followed by the mopping up operation: momentum must be maintained. The problem of the civilian population will have to be considered.

(c) Cordon and by-pass. This will be the more usual method, especially under nuclear, or the threat of nuclear, conditions. If the enemy do not withdraw and a cordon force large enough to be effective cannot be provided, the area will have to be reduced by one of the above methods.

Influence of nuclear weapons

3. The decision whether or not to employ nuclear weapons against a defended built-up area will be affected by:—

(a) The planned use of the area after capture.

(b) The problem of the civilian population.

4. A commander is unlikely to commit large numbers of troops inside a built-up area to defend it. He may defend forward, choosing routes to the rear that avoid the town, lest it become an obstacle to movement after nuclear attack. Alternatively, he may defend the rear of the area, using covering troops to fight a delaying action through the town, his defensive layout being designed to force the attacker to concentrate and offer nuclear targets.

5. A heavily defended town should be by-passed, cut off, and forced to surrender unless the cost in time and the tying-up of the containing force is unacceptable, in which case, a nuclear attack may be required. In assessing the nature of the strike needed and its GZ, care should be taken to ensure that a relatively clear passage is left through at least some portion of the town. It must be remembered that once a built-up area has been demolished by nuclear means, it will prove a formidable obstacle and, if re-occupied quickly by the defenders, may provide an even better defensive area than before.

SECTION 87.—DEFENCE

Organization of the defence

6. Section and platoon posts will be grouped to form defended localities which may in turn be organized as components of a larger defended area.

7. An ideal layout for the all-round defence of a small built-up area might be: to man the perimeter in sufficient strength to prevent enemy infiltration; to have a system of mutually supporting strong-points sited in concentric rings from the perimeter to the centre of the area: to have mobile reserves sited at various points for immediate local counter-attacks; and, in the centre, a strong keep, in or near which are located the main reserves. In the smallest types of built-up areas such as villages or hamlets, this type of layout is possible because the perimeter is small and the central keep or reserve sufficiently close to provide depth and immediate support to any point on it.

8. Such a layout is obviously impracticable in larger areas. A town with a total area of one square mile has a perimeter of at least four miles, and the area enclosed by a large perimeter would require prohibitive numbers of troops to provide depth everywhere. The problem is aggravated by the fact that restricted fields of fire prevent effective mutual support.

9. Normally it will be better to accept some infiltration between localities and to forego any attempt to hold a continuous line round the edge of a built-up area. Lines in depth can be pierced at selected points, while a series of static strong-points can be reduced piecemeal. The defence should, therefore, be concentrated on selected parts of a built-up area, such as the main routes into it and various key points which are well adapted for defence and which it is vital to deny to the enemy. These should be held as strong, independent, and self-supporting localities, each capable of all-round defence, composed of mutually supporting blocks of buildings and providing a pivot on which the mobile elements must be prepared to act offensively outside the area of the locality.

10. To ensure that subordinate commanders know the type of defence required, their responsibilities should be allotted specifically as defended localities.

11. It may be necessary for a subordinate commander to be allotted part of an area containing one or more defenced localities, but normally each sub-unit should be restricted to the defence of one locality. Boundaries will be laid down between localities or areas to denote spheres of activity or limits for patrolling; they should not be along likely enemy lines of approach.

12. When the strength of his force is inadequate for the defence of a built-up area given to him as his task, the commander has two alternative courses of action:—

(a) He may reduce the number of defended localities and increase the strength of mobile reserves. This will ensure that the maximum use can be made of the forces at his disposal and that minimum numbers are locked up in localities that may not be affected by the fighting when it begins.

(b) Alternatively, he may decide to disregard a part of the town and concentrate his defence in one selected area. A part of this area should lie on the perimeter of the town, to reduce the chances of encirclement and to allow for freedom of action outside it should the occasion arise. In the latter alternative, the organization beforehand of parties to harass the enemy by guerilla methods in the part of the town that he does not intend to hold will help him in the defence of the remainder. He should try to arrange for the part of the town that he does not occupy to be shelled as soon as the enemy enter it.

13. In any town, there will be a wealth and variety of material and resources available for defensive measures. In order to use them to the best advantage and to deny their use to the enemy, careful planning will be necessary and a detailed order of priorities should be issued early on. The main difficulty will be to coordinate preparations to ensure that no labour is wasted and that all work which can be done in the time available is put in hand.

Conduct of the defence

14. Streets and buildings are rigid; a commander should be at pains to prevent them from imposing their rigidity on his dispositions, which must in all circumstances be highly flexible. Flexibility will be greatly assisted if the defenders possess and exploit the advantage of local knowledge of the side-streets, alleyways, passages, alternative ways into and out of buildings and

compounds which are numerous in a built-up area. This local knowledge, which the attackers may not have, will offer many opportunities for moving reserves unseen, for ambushing or cutting off the enemy, and for arrangements which will prevent the enemy from turning the defences.

15. Although the defenders can remain concealed until the moment the enemy closes, the enemy will be able to exploit a similar advantage. It will be difficult to determine the weight and direction of attack or to secure and watch the flanks. Furthermore, owing to the difficulties of mutual support, an enemy may succeed in by-passing a locality or, particularly if an extensive area is held, in penetrating between strong points within a locality. The defence must be firm, yet mobile and aggressive. Such defence implies the use of a striking force and of firm bases from which mobile elements can operate. Battle outposts will be included in the initial stages.

16. If penetration is made between two localities, the defending garrisons must not only attempt to block further advance (which is merely to react to the enemy) but must exploit their superior knowledge of the ground to cut through and encircle as many of the attackers as possible. Abundant cover will enable the attackers to change direction and their forward elements will be difficult to locate, but attack from a flank will afford the best opportunity of hitting the enemy hard, thus reducing the momenturn of his attack, and of isolating and destroying him.

Tasks of striking force or main reserve

17. The primary tasks of a reserve will be:—

(a) To cut off and destroy enemy penetration (on some occasions the enemy may be enticed forward, with this aim in view).

(b) To restore a locality which has been overrun, by destroying the enemy in it.

Subsequently, this reserve may also have to hold a locality. It should, therefore, have reconnoitred the positions which it may later be ordered to hold. However, it will not normally hold a locality to begin with. There may be undue delay in concentrating the force from its positions owing to the difficulty of centralized control in built-up areas.

18. It may often be best to provide two mobile reserves, each with a locality allotted as a secondary role. According to the direction of the attack, one will occupy its allotted locality, whilst the other remains available as the striking force. Early decisions must be taken on the respective roles to allow the timely occupation of the locality to be defended.

Fighting patrols

19. Darkness will favour the attacker who must therefore be continuously harassed at night. Small active patrols must disorganize the enemy by every means—by stealth, and ambush, and sometimes by deliberate noise—to such an extent, that movement by him will be difficult and dangerous and he will be unable to move far undetected. It is largely upon energetic and effective patrolling and sniping, both by day and by night, that the successful conduct of the defence depends.

Alternative positions

20. The purpose of alternative positions is not to serve as a refuge when the garrison of a post or locality is hard pressed by the engaging enemy or is heavily bombarded. They are required for the following purposes:—

(a) To meet necessary variations in day and night dispositions.

(b) To meet the requirements of alternative tasks or a temporary change in role, eg, to cover another area, to support a counter-attack, or to achieve surprise.

(c) To mystify the enemy as to the position and strength of the defence by occupying positions in rotation.

(d) For occupation, should a building which forms a defended post be burnt out.

Defence of forward edges

21. There may be occasions when part of the defending garrison is sited on the forward edge of a built-up area; its dispositions are liable to be pin-pointed, thus making the enemy's supporting fire for his attack very effective. It will then be advisable for the garrison to carry out its harassing fire, before the enemy's main attack develops, from temporary positions. The battle positions proper must be occupied in time to catch the assaulting enemy in the open.

SECTION 88.—ATTACK

General

22. The attacker has three courses open to him. The enormous manpower required and the time and casualties which can be lost in fighting through will normally lead him to heavy bombardment or to cordon and by-pass.

23. The choice will be made depending on the situation. The availability of nuclear missiles will, of course, affect the choice of method and the enemy's likely reaction.

24. The methods of employing heavy bombardment and cordon and by-pass, are obvious. Therefore the more laborious method, fighting through, will be discussed in the following paragraphs.

Planning

25. Fighting through a built-up area requires a plan which has as its essentials:—

(a) Limited objectives. The attack must be carefully planned; unit and sub-unit objectives should be so limited that commanders at all levels have a reserve with which they can ensure that momentum is not lost. Fighting in built-up areas ties down a great many troops, an important factor in planning.

(b) Absolute control by commanders at all levels at all times, limited objectives, report lines, bounds and boundaries, and good communications are necessary to achieve this.

(c) Momentum must be maintained at all times, night and day. The slightest loss of momentum will give the enemy time to regroup, react and take the initiative. It is, therefore, essential to have reserves so placed that they can quickly take over and maintain momentum.

Information

26.*(a)* The layout of towns is usually available in maps, town plans and air photographs.

(b) On the other hand, details of the enemy defences, owing to cover and restricted observation, may be hard to ascertain, Full use therefore will have to be made of information obtained by patrols.

(c) Other sources of information will be prisoners, resistance men and refugees.

Simplicity

27. A simple plan is most important in this type of operation due to difficulties of control. Objectives must be clearly defined and strictly limited as to size. The plan must cater for successive units, or probably sub-units, taking over the advance by leap-frogging.

Form of the assault

28. An attack will normally be planned in three main phases:—

(a) Gaining a footing in the town.

(b) Progress within the town.

(c) Reduction of individual centres of resistance.

Division of built-up area into sectors

29.*(a)* The area must be divided into sectors and sub-sectors and each allotted to a formation, unit or sub-unit to clear. Sectors must be:—

(i) Clearly defined and easily recognizable.

(ii) Within the capabilities of the unit to seize and hold, bearing in mind that it must have a reserve.

(b) Sectors must be named and numbered and must have a named commander.

Control

30. Absolute control is essential and the commander must consider:—

(a) Orders which allot well-defined sectors to sub-units. The area must be cleared methodically sector by sector.

(b) Establishing reference points, report lines and bounds so that he can control the movement of all. Bomb lines, when used, must be very easily recognizable—this is not as easy as it sounds, as bombardment may make the line unrecognizable from the air. Suitably annotated large scale air photographs are of great value and should be issued down to platoon level, if available.

(c) Boundaries, bounds and report lines will usually be along streets, as streets are the most recognizable features in a town. Such streets themselves will always be inclusive to one fighting organization (probably a rifle company).

(d) Report centres should be established in each sector, to which ammunition and supplies can be brought and from which casualties can be collected.

(c) Very little control is possible without good communications. With the VHF radio, which depends on line of sight and is susceptible to blind spots, this problem will need special consideration. The location of HQs and the positioning of relay stations will be important.

(f) Names of streets, parks, etc, in most foreign countries make the use of nicknames advisable.

(g) Plans should include an organization to cut off the enemy's retreat and hamper his reinforcement, re-supply and regrouping. It is well to remember that the enemy is more likely to fight to the last if cornered in a building, and it might be better to do the cutting off outside the town.

Conduct of the attack

31. This should be a normal attack operation and should take into account:—

(a) Limited objectives, clearly defined to all commanders.

(b) The need to maintain momentum once the attack is launched. This necessitates the timely use of reserves. Reserves and commanders must therefore be well forward.

(c) Thorough clearing.

(d) The selection of objectives most effective for the second phase.

(e) Fire to cover all movement.

32. In the case of the larger towns and cities, simultaneous attacks from different directions were frequently employed by the Russians. This system has the advantage of confusing the enemy and enabling success to be exploited, but the difficulties of control are accentuated, possibly resulting in parties of attackers fighting one another. It also requires vast numbers of troops. Sectors can seldom assist each other and it is usually wiser to attack on parallel axes, with clearly defined boundaries between sectors.

Progress within the built-up area

33. Once a footing has been gained, the street fighting proper begins. The capture of each sector will involve:—

(a) Clearing the remainder of the sector and reorganizing it to provide a firm base for further operations. To counter the inevitable attempts at re-infiltration, it is often best to hold a perimeter round the edge of a sector, with a reserve centrally placed.

(b) Anti-tank weapons, including tanks, will have to be sited, mines laid and obstacles set up. Ammunition and supplies must be replenished, cellars and buildings strengthened and run-ways cleared through them.

34. The attacker will have the choice of some or all of the following routes of approach which may be used separately or in combination:—

(a) Streets.

(b) Gardens and back yards parallel to the streets.

(c) Roofs of houses.

(d) Inside houses through dividing walls.

(e) Underground approaches.

Supporting arms

35. The battle is fought by groups mainly composed of Infantry. The conditions are too confused and movement too restricted to permit the use of large numbers of the heavier types of supporting arms.

Tanks

36.*(a)* Tanks can be used most effectively in support of Infantry in fighting in built-up areas. They have two main roles:—

(i) Protecting the flanks of the advance from interference and preventing the enemy's withdrawal.

(ii) Providing direct fire support against strong points or buildings which are holding up the operation.

(b) The detailed allotment of the available tanks will be dependent upon the extent of the objective.

Artillery

37.*(a)* Preparatory bombardment can be used prior to the break-in battle, but it must be borne in mind that a heavy bombardment on built-up areas may well require the employment of engineer resources for route clearance.

(b) After the break-in battle, close artillery support is limited by generally poor observation and the proximity of our own troops to the enemy. If the supporting artillery are guns capable of firing only in the lower register, there is the additional disadvantage of the flat trajectory. Therefore, covering fire during the fighting through phase will rarely be possible except when there are open spaces such as parks or squares within the built-up areas.

(c) However, during the fighting through, artillery may well be employed, probably in the upper register, to destroy buildings or strong points. Artillery can also be employed to harass the enemy's withdrawal, disrupt his

lines of communications and hinder the movement of his reserves. Reconnaissance flight aircraft will probably be required for observation of these tasks.

Engineers

38.*(a)* Engineer working parties will be kept well forward to carry out their major tasks of opening up routes and breeching unexpected minefields.

(b) There will be a heavy demand for mine and route clearance to allow the forward movement of vehicles. Engineer plant will be in particular demand for moving debris.

(c) The demolition gun mounted on the engineer AVRE will be useful for the rapid destruction of solid obstacles.

39. The important point is to take advantage quickly of air attacks on the enemy, whether heavy bombing (which is unlikely in the future) or normal fighter/ground attack strikes. Ground attack aircraft using cannon, bombs, rockets and other devices are able to engage targets close to our own troops provided they are recognizable from the air, particularly when the pilots are assisted by Forward Air Controllers on the ground.

Helicopters

40. The use of helicopters will give commanders a much better opportunity for reconnaissance and control. Helicopters will prove invaluable for casualty evacuation and resupply, especially of ammunition.

Casualties

41. A special mention of casualties in fighting in built-up areas is necessary. Because of the nature of the operation, these may be so heavy that whole sub-units may suddenly become non-effective. If reserves are not quickly passed through, momentum will be lost and with this the initiative in the battle passes to the defender.

CHAPTER XXIII

COUNTER-ATTACK OPERATIONS IN THE DEFENSIVE NUCLEAR BATTLE

SECTION 89.—INTRODUCTION

Types of counter-attack operations in nuclear war

1. Counter-attack operations in the nuclear defensive battle will vary as widely in scope as in the conventional battle but can be divided into three broad categories:—

(a) Minor actions, which may even be fought with conventional weapons only, with the object of clearing up local situations within unit areas, such as minor bounce crossings or small-scale infiltration.

(b) The launching of forward brigade group reserves, probably in conjunction with nuclear strikes, to restore more threatening situations within forward brigade areas.

(c) Large-scale operations carried out by reserve formations. These formations will usually consist mainly of tanks and their operations will generally form part of the corps counter-stroke, Phase 4 of the corps battle in nuclear war, which is launched to disrupt the enemy advance and regain control throughout the obstacle zone.

2. This chapter deals mainly with the type of operation which forms part of the corps counter-stroke. Certain general points will first be examined before considering the phases of such an operation at battle group level in detail.

Aims of counter-attack operations

3. The aim given to a commander charged with mounting a major counter-attack operation may be one of the following:—

(a) To destroy a specific part of the enemy force, eg, HQs and/or nuclear delivery systems.

(b) To establish his force in a particular area to regain control of that area and re-establish surveillance over the major obstacle.

(c) To carry out further operations to complete the destruction of the enemy force.

Planning

4. Broad decisions regarding major counter-attack operations will obviously have to be made by the corps commander but detailed planning may be done by a divisional HQ kept out of the main defensive battle for this purpose.

Nuclear fire

5. The nuclear fire plan will form the basis of any major counter-attack operation. The role of the counter-attack force itself will be to exploit the nuclear strikes to achieve the aim of the operation quickly. The aim of the nuclear fire plan will be to destroy the enemy to clear the way for the advance of the counter-attack force. In so doing care must be taken not to hamper our own advance by blowdown and radiation, especially in urban or wooded areas.

6. The nuclear fire plan will be made above battle group level. Battle group commanders will not be given control of any specific nuclear fire, but some nuclear strikes will be retained for use on opportunity targets. Battle group commanders may make requests for this fire to brigade group HQ during the battle.

7. The procedure for making the plan will be that the commander will say what he wants the nuclear fire plan to achieve. The artillery staff will then produce, after target analysis, recommendations in each case regarding the most appropriate:—

(a) Delivery system.
(b) Yield.
(c) Height of burst.
(d) Desired GZ.
(e) Time of burst.

8. They will also advise whether any modifications of existing troop safety precautions are desirable. After the commander has approved these recommendations detailed artillery orders will be issued for the implementation of the fire plan. If during the battle our own troops are in the danger area of a missile of the desired yield, they will have to be withdrawn to safety, or the DGZ or the yield must be adjusted. The latter course is better since the withdrawal of troops in contact with the enemy is generally undesirable and often impracticable. Such a withdrawal would also give the enemy a positive indication of an imminent nuclear strike. The arrangements for the warning of other friendly forces and the air force must be well known to all concerned.

Composition of the counter-attack force

9. The force will almost certainly consist of a number of battle groups of all arms. They will inevitably and necessarily be considerably dispersed, whether given individual tasks or operating in a co-ordinated brigade group action.

10. The proportions of tanks and Infantry depend on the task and terrain. There should never be less tanks than Infantry and tanks should often predominate. Some Infantry who must be in APCs will always be included.

11. Battle groups should have engineer support whenever possible. Armoured engineers should be allocated to each battle group in an operation in which there is a preponderance of tanks.

Connected operations

12. In any counter-attack operation of the nature being considered, there will nearly always be other operations carried out by forward units and formations which are clearly connected with and will support the main operation. Two such operations are:—

(a) The crust battle

Once launched into battle, the counter-attack force will hope to strike fast and deep. Enemy positions relatively close to our own troops may well have survived the full effects from nuclear strikes and must be dealt with before the counter-attack force can pass through. Such opposition should be eliminated by troops other than those of the counter-attack force. This may not always be possible and the counter-attack force will have to fight through the crust itself.

(b) Mopping-up operations

The final stage of a major counter-attack operation will be mopping-up those enemy in the area of operations who have been by-passed and left behind in the fast-moving tank advance. These operations will probably be carried out partly by troops previously deployed in the areas through which the counter-attack force has passed, and partly by the counter-attack force itself.

Section 90.—PRELIMINARY PLANNING AT BATTLE GROUP LEVEL

Location

13. At the outset of the defensive battle the battle group will be located in well-dispersed harbour areas well behind the obstacle zone.

Grouping

14. In the harbour areas the battle group will be grouped into combat teams each of which may consist of one squadron of tanks and one platoon of Infantry. Artillery and engineers should, where appropriate, be grouped with the battle groups with which they are going to operate. It must be remembered, however, that the artillery guns may have already been deployed forward in support of the defensive battle in Phases 2 and 3: but in any case battery commanders and FOOs will remain with their normal battle groups.

Possible tasks

15. Before the battle begins the battle group commander is likely to be given a number of possible tasks. In fact he will probably be ordered to prepare plans for counter-attacking in conjunction with nuclear strikes in various different areas and with different objectives in each case.

Reconnaissance

16. Each of these possible tasks must be reconnoitred by the battle group commander and the commanders of his supporting arms. In addition the commander of the direct support battery must preplan as many of his conventional artillery fire plans as possible and reconnoitre possible OPs and gun positions.

Assembly areas and routes

17. In the course of this planning the battle group commander will select forward assembly areas from which each of his counter-attack tasks can be launched and routes up to them from his original harbour areas. Forward assembly areas will generally be close behind the containing line where it is envisaged that the defensive battle will be being fought at the time when the counter-attack is launched.

Ground

18. The battle group commander must make a detailed study of the ground:—

(a) From his harbour areas to his forward assembly areas so that he will be able to pick alternative routes forward if enemy action prevents the use of pre-selected routes.

(b) Behind the containing line so that he can select alternative forward assembly areas if enemy action or unforeseen developments prevent the use of areas originally selected.

(c) Forward from the containing line to the possible objectives so that when the time comes he can select axes for his combat teams in the light of his knowledge of:—

(i) The ground itself.

(ii) The areas in which our nuclear missiles have been or are to be fired.

(iii) The areas either occupied by the enemy or affected by nuclear missiles fired by the enemy.

Timings

19. The battle group commander and/or formation staffs responsible for planning the forward movement of the battle group to its forward assembly areas will need to calculate timings for this move before the battle begins, for two reasons:—

(a) The decision to launch the counter-stroke will have to be taken in sufficient time to allow the battle group to complete its move up to forward assembly areas before the planned launching time. This means in effect that the corps commander must be able to forecast where and when he will launch his counter-stroke some twelve hours or more in advance.

(b) Close timings will be essential to achieve surprise and to prevent the battle group becoming a nuclear target in its forward assembly areas. The assembly areas must therefore be planned as far forward as possible and the plan should also cater for as short a time as possible to be spent in them.

Section 91.—FINAL PLANNING

Action by the battle group commander

20. Once the decision has been taken to launch the counter-stroke, the battle group commander himself must go forward to obtain information and to make his final plan. He will probably go to the HQ of the forward formation through whose area his attack is to pass, and may send liaison officers to other forward HQs or units.

Information

21. Before the final plan can be made the battle group commander will be told or must find out:—

(a) The tasks allotted to the battle group. There is a possibility that at this stage of the battle two or more possible tasks will still confront the battle group commander. The final decision as to which task is to be carried out may not be taken until later, possibly after the move to forward assembly areas has begun. There is also the possibility that a task may be allotted before the battle group moves forward but, by the time the move to forward assembly areas is completed, the situation and therefore the task will have changed.

(b) The going, both up to the forward assembly areas and for the attack itself. This must take into account all changes to the original ground due to nuclear effects,

(c) The enemy situation. The battle group commander must have the latest information on all known strengths and dispositions of the enemy.

(d) The latest situation of own troops including all known dispositions and the degree of assistance which can be given by such troops in the crust battle, mopping up, etc.

(e) Details of the nuclear fire plan and timings for the counter-stroke operation.

22. It must be appreciated that, at this stage of the battle, the information available to the battle group commander will not be precise or complete. In particular there will almost certainly be bodies of our own forward troops whose fate and whereabouts are unknown, and areas of ground the state of which is unknown due to lack of reports or nuclear effects.

Routes and assembly area

23. As soon as the Warning Order for the move forward is received, routes forward and planned forward assembly areas have to be confirmed. If necessary new routes and new forward assembly areas will have to be selected and reconnoitred. These confirmatory reconnaissances will be carried out by the reconnaissance troop; liaison officers must liaise with any HQs of other formations through whose areas the battle group is to move.

Plan for the attack

24. In making the final plan for the attack itself the battle group commander must lay down:—

(a) An order of march for the attack including the detailing of combat teams to lead the advance on each axis he selects, and the detailing of a reserve.

(b) Objectives, both intermediate and final, for each combat team, including any objectives as part of the crust battle, if applicable.

(c) Alterations from the original grouping in which the battle group was organized in its harbour areas.

(d) Axes of advance along which the attack will be conducted by the leading combat teams.

(e) Bounds and report lines as a means of controlling the advance.

(f) Tasks for the reconnaissance troop such as to work closely with leading combat teams to reconnoitre routes, or flank reconnaissance and liaison.

(g) Tasks for any light aircraft allotted from the brigade group reconnaissance flight for additional reconnaissance.

(h) Fire plans for his direct support conventional artillery including the fire plan for the crust battle whether the latter is in support of the battle group itself or in support of a crust battle being fought by other units or formations.

(j) Timings in accordance with those laid down by formation HQ for the operation.

Timings

25. Subordinate commanders must be warned as soon as the corps commander decides where and when to launch the counter-stroke. The start of nuclear fire will be based on N hour and the start of the counter-attack will be based on H hour. The time gap between N hour and H hour is for the commander at the appropriate level to decide. The longer he allows, the more casualties the enemy will suffer from radiation; against this, the enemy will have longer to recover from the shock. The commander may wish to wait a few minutes in any case until he is assured that all missiles have been fired successfully.

26. If N hour is to be at first light, the preliminary moves to forward assembly areas can be carried out under cover of darkness; this advantage may be offset to some extent by improved surveillance devices now in enemy hands. A nuclear strike before first light should have severe dazzle effects on the enemy and may catch some of his troops in the open.

27. On the other hand, an N hour just before last light enables the attacker to have the whole night in which to penetrate deeply into the enemy position relatively untroubled by air attack and direct observation by the enemy. But note that:—

(a) The enemy's improved night surveillance devices must not be disregarded.

(b) Control by all commanders will be less easy by night.

(c) Any nuclear missiles fired by the enemy on this part of the battlefield will have considerable dazzle effects on our attacking force.

Section 92.—MOVE TO AND ACTION IN FORWARD ASSEMBLY AREAS

Timing the move

28. The timing of the move forward will be influenced by a number of factors, an important one being the timings of N and H hours as already discussed. The battle group must not present

a worthwhile target for enemy nuclear fire and an approach march of this type should take place at night, particularly when the enemy enjoys air superiority. The battle group should spend as short a time as possible in forward assembly areas, only enough to allow for essentials.

Routes

29. The battle group should select or be allotted three separate routes for its move to the forward assembly areas; it may have to make do with two or even one. This will permit the group to advance well dispersed, with a combat team on each and with battle group HQ and other groups or teams, such as artillery batteries and armoured engineers, using whichever of these routes suits them best. Routes need not necessaraly be along roads but may follow a cross-country course to avoid likely points of congestion and to permit large and awkward vehicles, such as the bridgelayer, to progress.

Method

30. By night, combat teams will probably move in line ahead, suitably spaced. By day, teams will have to move well dispersed probably by troops and platoons astride the route itself.

Control

31. The move will often take place as part of a formation movement plan. In this case, provost detachments and pointsmen will be deployed to help control the battle group in its movement. Timings past the start and release points must be complied with. Reconnaissance troops or platoons may be used to set up traffic posts as necessary. One difficulty in establishing control over the move is the need to cut radio traffic to the minimum, and any traffic control organization must be careful not to jeopardize security in this respect. It will be prudent to allow a small insurance in time in the movement table.

Dispersion, concealment and safety

32. In the forward assembly areas combat teams will be widely dispersed and a high standard of concealment is essential. If the enemy detects the presence of an armoured force close up to the battle area he will be forewarned of the attack and do all he can to destroy the force before it is launched.

33. As the time spent in forward assembly areas should not be more than an hour, digging in will be out of the question. A greater degree of protection against nuclear effects can be achieved inside tanks and APCs than in any trench which can at present be dug in one hour or less.

34. If for any reason H hour is postponed and the battle group must spend appreciably longer than one hour in forward assembly areas, the commander must consider moving his entire force to another area to save it from destruction arising from possible discovery by the enemy.

35. Tanks and APCs must be closed down from before N hour until after the initial nuclear strikes have been made and must then be ready to move forward into the attack without delay.

Action in forward assembly areas

36. While in forward assembly areas the battle group commander must continue to be in communication by radio and liaison officer with the forward units engaged in the battle and with their formation HQs.

37. The time spent in forward assembly areas must be long enough:—

(a) To allow for the refuelling of all tanks, APCs and other vehicles if this is not done en route; refuelling some 5000 metres before entering the areas will cut down on the time to be spent in them.

(b) To enable any change in plan to be made and passed down to combat teams, troops and platoons.

(c) To permit reconnaissances forward to the start line, if considered necessary or if a change of plan is made.

38. The imposition of radio silence in the forward assembly areas is impracticable as without radio the operation cannot be finally mounted and launched. The use of radio must be kept to the essential minimum to reduce the loss of security. A deception plan involving the use of radio to deceive the enemy as to the time and place of the attack should be considered but will be a decision for higher commanders.

SECTION 93.—THE ADVANCE TO THE OBJECTIVES

The tactical plan

39. The tactical plan of the battle group will be dictated by:—

(a) The need for rapid break-through or by-passing of enemy survivors of nuclear strikes while they are still shocked and handicapped by the various effects.

(b) The selection of suitable routes or axes in relation to our nuclear GZs, and to possible areas of damage or residual radiation resulting from our own or enemy nuclear fire.

(c) The nature of the ground and avoidance of natural or artificial obstacles.

(d) Engineer resources available to overcome obstacles which cannot be avoided.

(e) The air situation.

40. The advance should be launched from the forward assembly areas without further halts in forming up places which add to the likelihood of enemy detection and reaction. Start lines may be needed for combat teams as a means of controlling forward movement in relation to H hour.

Conduct of the advance

41. The battle group will have been ordered to attack along an axis and it will normally attack with two combat teams of about squadron strength leading. The battle group commander will allot axes to his leading combat teams and will always retain part of his force in reserve.

42. Once the attack has been launched the aim must be to keep up its impetus until objectives are reached. Commanders at all levels should regard routes and axes as a guide and the task of combat teams meeting isolated pockets of enemy resistance is to find a way through or round the flanks and to keep the advance going.

43. Sections of the reconnaissance troop must be used to reconnoitre routes around areas of tree blow-down, nuclear devastation, residual radiation or enemy-held areas. Any light aircraft allotted to the battle group will be able to give early warning of such areas.

44. Leading combat teams must exploit our own nuclear fire quickly to penetrate deeply and deal with the enemy before he can recover from the immediate effects.

45. The centres of nucleared areas should be avoided:—

(a) Because our own troops should not be subjected to more radioactivity than is absolutely necessary, otherwise sooner or later they will become casualties.

(b) Because areas where devastation and blow-down are at their worst will be most likely to hinder the advance.

46. Tanks and APCs should therefore drive through the fringes of radiation affected areas without loitering in them. In this way advantages will be taken of the damage and confusion to the enemy without our own troops becoming serious casualties themselves.

47. Infantry work with the tanks to give them intimate support and they must not become embroiled in minor battles. Mopping up must be left until later in the battle.

48. All sub-units must deploy their monitoring teams who will report the intensity of radiation in areas through which they pass.

Command and control

49. Besides axes the battle group commander will allot bounds and report lines to his combat teams.

50. His orders to his combat team commanders will be instructions rather than firm orders. In the fluid and confused situations in a battle of this sort it will be impossible to tie subordinate commanders down with rigid orders.

51. All commanders must move well forward in their order of march and must have first-class communications. They must act with boldness and initiative especially when communications are disrupted by physical damage or enemy electronic interference. This will only be possible if commanders at all levels fully understand the aim of the commander directing the overall operation.

Artillery

52. During the advance the battle group commander can call for nuclear fire on opportunity targets. He must sometimes decide whether the situation merits holding up the advance for the duration of the response time or whether the risks involved in trying to continue the advance without waiting for nuclear fire are justifiable.

53. Fire support for the crust battle will come from all available artillery deployed within range. The battle group's own direct support guns may have already been deployed for the earlier phases of the battle.

54. Conventional fire support for the main counter-attack will come from the direct support battery of the battle group. Additional fire support for the opening stages will almost certainly be allotted from artillery units already deployed in the area. Special arrangements, communications, etc, may be necessary to ensure that the direct support battery commander can co-ordinate all the artillery support allotted.

55. The battle group commander should use this firepower to help him to overcome or by-pass enemy pockets of resistance surviving after our nuclear strikes and any other unexpected enemy opposition.

56. FOOs from the direct support battery will be allotted to combat teams and when the advance begins the battery must be poised ready to move forward in support of the leading combat teams in any attacks in which they become involved. The battery

will normally provide fire support at all stages of the advance by leap-frogging sections forward. If the battle group is operating as part of a brigade group counter attacking on close axes, leap-frogging will be by batteries controlled by the commander of the close support regiment.

57. Since conventional artillery will be limited in ammunition as well as in guns, it must be used in the most economical and concentrated manner. Targets will normally be on call.

Engineers

58. Armoured engineer support must be well forward. Armoured engineers are not plentiful and their allocation to battle groups will be made by brigade group or even divisional HQ. An armoured battle group may be allotted one troop of armoured engineers and elements of this troop should be allotted in support of the leading combat teams to clear routes without delay. Some field engineers may also be allotted to the battle group.

59. Engineer reconnaissance parties must move well forward on each axis to report conditions of routes back to supporting engineers and formation HQs.

Section 94.—REORGANIZATION AND EXPLOITATION

60. The plan for reorganization and exploitation must be laid down and will depend on the main aim of the operation. If the aim is purely one of destruction the battle group may be ordered to retire once its tasks are completed. If, on the other hand, the aim is to control a certain area and perhaps to re-establish surveillance, then the battle group must dominate and secure the area concerned until it is relieved of the task.

61. If exploitation forward of the objective has been ordered this could be carried out by the reserve combat team if it is still intact.

62. The higher commander's plan will normally cater for a separate force consisting of Infantry rather than tanks, to take over the objectives and the task of re-establishing surveillance from the armoured battle group. This Infantry force may well be that which has followed up behind the armoured counter-attack in order to mop up.

63. Once the armoured battle group is relieved on the objectives it will be withdrawn into its original reserve role and will be replenished and reorganized as necessary in readiness for further counter-stroke operations which may be ordered.

CHAPTER XXIV

AIR SUPPORT

SECTION 95.—INTRODUCTION

1. Land forces engaged in any operations, nuclear or non-nuclear, in future will be dependent to some extent on air support, tactical or logistic, or both. This chapter deals with those main aspects of air support which may directly affect the Infantry battalion.

2. A Manual of Joint Warfare is being prepared but will not be published for some time. Meanwhile material from a number of relevant sections is reproduced briefly in this chapter.

Tactical air operations

3. Tactical air operations comprise:—

(a) Offensive air support: there are four main tasks:—

(i) Counter-air.
(ii) Interdiction.
(iii) Reconnaissance.
(iv) Close air support

(b) Transport air support.

Counter-air

4. These operations are directed to obtain a favourable air situation: to reduce enemy air to such a degree that it is incapable of effective interference with our operations.

5. This takes time, and once achieved it must be maintained. This role has always been the top priority for our air forces: in nuclear war it is vital. The enemy nuclear threat, whether aircraft or SSGW, must be removed before it removes us.

Interdiction

6. This is designed to give more direct support to ground operations: to destroy or neutralize the enemy's military potential before it can be brought to bear against us.

Air reconnaissance

7. This is no less important in non-nuclear operations than before, and is vital in nuclear war. Tactical air-reconnaissance is dealt with in more detail in Section 96.

Close air support

8. This is the use of aircraft in direct support of ground forces and calls for detailed integration with their fire and movement. The various methods of air delivery are summarized in Section 97.

Naval air support

9. Aspects of carrier aircraft support are covered in Section 98.

Close air support procedures

10. The usual procedures for obtaining close air support are summarized in Section 99.

Transport air support

11. The mounting of airtransported operations is examined in detail in Sections 100-102.

Helicopter operations

12. These are discussed in Section 103.

Aeromedical evacuation

13. Some details are given in Section 104.

The Army Air Corps

14. Objects, tasks and methods are summarised in Section 105.

SECTION 96.—TACTICAL AIR RECONNAISSANCE

Types of air reconnaissance

15. There are five types of air reconnaissance which can be used to obtain information in the tactical area:—

(a) Photographic (PR):— { vertical; oblique.

(b) Visual (FR).

(c) Radar.

(d) Electronic ferreting.

(e) Weather.

Photographic reconnaissance

16. Photographic reconnaissance is defined as the obtaining of information by day and night from air photographs. It is normally carried out by specially equipped squadrons whose aircraft have been modified to carry a varying number of cameras and may have no armament.

Object of air photographs

17. Air photographs are required for two main purposes:—

(a) Provision of topographic and hydrographic information.

(b) Provision of information about all forms of enemy activity.

Types of air photographs

18. **Vertical:**—an unfamiliar view of the ground but capable of extremely accurate interpretation; taken from an aircraft with the camera directed vertically downward; verticals taken from various heights, with cameras of varying focal length produce the scale required.

19. **Oblique:** an ordinary view of the ground, but not as accurate as the vertical; taken by cameras set at an angle, mounted in the fuselage or wings of an aircraft. This type of photography is particularly suitable for low level reconnaissance.

20. These two types of air photographs can be provided in a variety of forms:—

(a) *Vertical-line overlap:* vertical photographs taken from an aircraft flying a straight course. Each exposure overlaps the succeeding one by 60% to allow stereoscopic study.

(b) *Feature-line overlap:* vertical photographs taken from an aircraft following a feature on the ground. Once again 60% overlap is provided.

(c) *Split pair:* two cameras mounted in the fuselage of an aircraft set at a slight divergence so taking a wider area. The lateral overlap is 30%

(d) *Oblique-line overlap:* taken by aircraft flying parallel to a feature. It produces an overall view, eg, of beaches or defensive positions.

(e) *Forward-facing oblique:* taken by cameras mounted in the nose of the aircraft. Cameras point forward, so that as aircraft approaches a target or follows roads, canals, or beaches, a series of oblique photographs is taken.

Limiting factors affecting photographic reconnaissance

21. Factors which reduce the capabilities and application of air photography are:—

(a) *Weather:* low cloud remains the most severe limitation to photography, particularly in Europe. It is for this reason that all photographic reconnaissance aircraft are being equipped with oblique cameras to enable them to operate at low level.

(b) *Enemy opposition:* both anti-aircraft fire and air opposition restrict freedom of action of photographic reconnaissance.

(c) *Illumination:* the number and efficiency of the flash bombs or cartridges which can be carried for night photography.

(d) *Type of country:* certain types of country provide good natural concealment. This means that photographs of extra large scale may be required which would result in a large number of sorties.

(e) *Photographic interpretation:* the time-consuming process of photographic interpretation will require that the very minimum of exposures are taken of each target area and then that only a few selected prints are chosen.

Processing

22. The processing of films and reproduction of prints is entirely an air force responsibility. If the information is really urgent, the reconnaissance aircraft is met prior to reaching dispersal, the camera film magazines unloaded, and the exposed film rushed to a mobile field photographic section. By this method the negatives or wet prints are delivered to the interpreters 15 to 20 minutes after the aircraft lands.

Interpretation

23. Photographic interpretation is each service's own responsibility. There are three phases:—

(a) *First-phase interpretation* is carried out at the airfields and is done from negatives or wet prints. An answer to an urgent question can be given in about 30 minutes after the aircraft lands and the information is forwarded to the interested formation by the most convenient means in the form of a *Hot Report*

(b) *Second-phase interpretation* is normally carried out at the HQ which requested the information and consists of a more detailed study with a written report and annotated photographs. A second-phase report can be expected about 12 to 24 hours after the request has been made.

(c) *Third-phase interpretation* is the long-range study of a particular subject and is used mainly for strategic planning. Speed in this case is not as important as the presentation of all the detailed information on the subject.

24. Under nuclear conditions it is considered that the priority is going to be so high on having immediate information that all photo interpreters will be employed on first-phase interpretation only.

Visual reconnaissance

25. Due to the adverse weather conditions, particularly in Europe, and the urgency of reconnaissance information under nuclear conditions, much greater emphasis is now put on visual reconnaissance. It is normally carried out by single-seater aircraft known as fighter reconnaissance aircraft which have the following essential characteristics:—

(a) High performance at low altitude.

(b) Standard fighter armament.

(c) Capable of carrying oblique cameras and a tape recorder to enable the pilot to record and confirm what he sees visually.

Capabilities

26. Visual reconnaissance provides much faster but less detailed information than photographic reconnaissance. It consists of a short pilots report, either written or recorded on tape and oblique photographs. The pilot can, on occasions, "flash report" urgent information directly back from the target area to an air control centre or a forward army formation. An alternative method of "flash reporting" is to route the reconnaissance aircraft back from the target through defined air corridors within which air-ground-air communications are located.

27. The amount of information a pilot can obtain on a visual reconnaissance mission depends to a large extent on what he is looking for, the ground and even the time of the year (leaves on trees or snow cover). The pilot must therefore be carefully briefed to look for specific information in particular places. The proper use of the oblique cameras may, however, pick up more detailed information than what is seen visually.

Limitations of visual reconnaissance

28.*(a)* Cannot operate at length over heavily defended areas.

(b) Restricted by close country.

(c) Deceived by camouflage.

(d) Restricted by weather, but to a much less extent than photographic reconnaissance.

Radar reconnaissance

29. Radar reconnaissance supplements other methods of reconnaissance by providing an all-weather capability. It will not, however, provide the same detailed information as photographic reconnaissance. Radar photography is simply a system whereby a camera photographs the radar-scope in order to record the information for future reference and interpretation.

Electronic ferreting

30. Electronic ferreting is the obtaining of information on the enemy's radar and electronic systems, such as early warning and control, communications and guidance systems for SSGW. It is carried out by a specially equipped long-range aircraft, normally belonging to the strategic bomber forces.

Weather reconnaissance

31. Weather reconnaissance is used to provide additional information to that given by the normal meteorological services, particularly over enemy territory. This information is required for the planning of flying operations and to determine the effects of both air and ground delivered nuclear weapons.

Future trends in tactical air reconnaissance

32. If all the requirements for air reconnaissance in the tactical area are to be met, a large reconnaissance force and an all-weather capability are necessary. In regard to the size of reconnaissance forces, we cannot afford to restrict large numbers of specialized jet aircraft to a single reconnaissance role. One way to increase our sources of reconnaissance information is to give other aircraft operating in the tactical area, such as fighter/ground-attack aircraft, a reconnaissance task in addition to their primary task: "colateral tasking". Our reconnaissance forces are also to be increased by giving tactical strike aircraft a reconnaissance capability through a quick installation of cameras or special camera packs.

All-weather reconnaissance

33. The next generation tactical reconnaissance aircraft will have an all-weather capability by being equipped with Sidescan radar, looking on both sides of the aircraft. Information obtained from this equipment will be transmitted either directly or by delayed means to a ground receiver station.

SECTION 97.—METHODS OF AIR DELIVERY

Introduction

34. This section outlines the various methods which can be used for the delivery of conventional and nuclear weapons by tactical aircraft.

High and medium-level bombing

35. From heights above 20,000 feet: normally carried out by light bomber aircraft in the tactical area. Unless aircraft are equipped with radar, targets must be sighted visually, or marked at night, therefore cloud can seriously interfere with this type of attack. Ground aids can provide blind bombing facilities but those aids may not be available in all tactical areas. Aircraft are vulnerable to long-range detection by enemy radars and to interception by fighters and SAGW. Stick bombing is used to bracket the target. For penetration of runways, hard areas, etc, release is normally above 12,000 feet.

Dive bombing

36. Provided the target can be sighted visually, this is an accurate method of delivering bombs by fighter aircraft. Steep dive = 60° to 70°; a shallow dive = 30° to 45°. The dive can be started at any altitude, but pull-out height will depend on angle of dive, speed, terrain and size of weapon.

37. Dive bombing can be used from a low level/high speed approach with the aircraft pulling up, under the direction of a forward air controller or on an initial point, to a height for roll over into the dive onto the target.

Skip bombing

38. Suitable against vertical targets, penetration of caves, etc. Bomb released at 100 ft. to skip off ground into target. With practice a very accurate method of delivery when cloud conditions or target requirement preclude use of other types of attack.

Rocket attacks

39. Primary method used by fighter/ground attack aircraft to attack ground targets. Normal weapon load is eight 3-inch rockets with 60 lb. heads, the head varying with the type of target: SAP/HE, hollow-charge or squash-head. Attack involves a pull up to between 2/3,500 feet with break off between 800/1,000 feet above ground level. No tank has been known to survive a direct hit by a 60 lb. hollow-charge or squash warhead.

40. Pods of 37 2-inch rockets can be fitted for attacks against soft targets (vehicles, troops, aircraft). Two or four pods can be carried, depending on the type of aircraft. A fragmentation head is under development.

Napalm

41. Normally carried in 100 gallon tanks and delivered at speeds between 300-450 knots from a height of 50 feet or less. A flat

approach is a requirement, the aim being to envelop the target in the centre of the flame. Tends to shatter morale when used against troops. Effectiveness against tanks has not been conclusively proved. Ideal for flushing troops and tanks out of cover. Can be used when cloud conditions preclude use of other types of attack. At 350 knots and 50 feet height, two 100 gallon tanks can produce a flame spread of 75-50 yards. At present not used by the Royal Air Force.

Cannon

42. Fighter armament normally four 30-mm. cannon with combined fire of 5,200 rounds per minute. Concentrated and accurate fire effective against soft targets.

Bullpup GW

43. Stand-off weapon, carried by fighters and light bombers for attacks on strong points, bridges, etc. Radio controlled after launch and guided visually by pilot onto target by reference to tail flares.

Nord AS.30

44. Similar to Bullpup. Similar radio control and target alignment.

High and medium-level nuclear bombing

45. From heights above 20,000 feet. This is approximately the minimum height from which unretarded nominal bombs can be dropped to airburst at 2,000 feet, with the aircraft flying straight and level and not resorting to violent evasive manoeuvres to escape destruction from its own bomb.

Nuclear dive bombing

46. From heights of 40,000 feet down to 25,000 feet, with unretarded nominal airburst bomb. An accurate method for area targets but must be carried out visually and therefore requires good weather in the target area.

Nuclear toss bombing

47. A method similar to dive bombing, except that the bomb is released as the aircraft climbs away after dive. The bomb can be released at lower levels than in dive-bombing case.

Low-level nuclear bombing

48. **Loft bombing.** Essentially the same as toss bombing except that the aircraft approaches the target at low level. Accurate delivery depends upon selection of a suitable initial point. Special

equipment required in the aircraft. Pilot employs evasive manoeuvres to avoid destruction by his own bomb. Cloud cover no disadvantage.

49. **90° Method.** Manoeuvre executed over target to release weapon at 90° (vertically over the target).

50. **Over-the-shoulder bombing.** Modified form of loft bombing which entails flying over the target, and releasing the weapon around 110°.

51. **Pop-up method.** With the development of retarded systems, fighter aircraft can deliver nuclear waepons without special delivery equipment. System is to pull up on visually estimating target distance, release bomb in climb, roll on back, pull through, roll out and escape. Height of pull up will not normally exceed 1500-2,000 feet to give required separation between aircraft and and airburst of weapon at 200 feet.

52. **Lay-down method.** Development of delayed action weapon enables lay-down systems to be used for ground burst targets. Aircraft flies over target at low level and releases weapon visually (no equipment required). Weapon retarded, explodes after delay giving required separation distance.

53. **Bullpup.** A nuclear head may be delivered by Bullpup using the offset technique but the pilot (guiding the weapon visually) will be blinded by flash at least in one eye (eyeshield on other eye).

54. **Nord AS.30.** Similar to Bullpup, except that sustained thrust can permit launch in unguided mode, with aircraft turning away, to achieve sufficient accuracy with a nuclear warhead.

Section 98.—CARRIERS AND NAVAL AIRCRAFT

Introduction

55. A carrier force may be used in tactical air operations in support of ground troops in non-nuclear war. In nuclear war, carriers are likely to be involved in achieving maritime superiority and in attacking pre-planned targets with their nuclear strike aircraft, and are therefore unlikely to be available for tactical air operations.

56. This section deals with material aspects of carrier flying and covers the equipment from carriers and aircraft to the improvements which have resulted from the carrier modernization programme.

Carrier developments

57. There are three main carrier developments which have enabled these ships to keep up with the rapid progress of aircraft design:—

(a) *The angled deck:* allows aircraft making a missed approach to take off again for another approach; it is no longer necessary to rig a wire barrier to separate the landing area from the parking area.

(b) *The steam catapult:* a necessary improvement to enable swept-wing jet aircraft to be launched at the higher speeds required.

(c) *The mirror landing aid:* replaces the deck landing control officer: following this aid enables the pilot to fly on the exact approach path much more easily than before.

Employment of naval aircraft

58. Naval aircraft involved in tactical air operations are able to perform the following tasks:—

(a) Counter-air operations: attacks against enemy airfields, aircraft and air force installations.

(b) Air reconnaissance: photographic and visual.

(c) Interdiction.

(d) Close air support.

59. Naval aircraft now in service each fulfil one of three main roles and in addition can carry out a secondary task when required:—

Aircraft	*Primary role*	*Secondary role*
Scimitar	Strike	Day fighter
Sea Vixen	All-weather fighter	Strike
Whirlwind	Anti-submarine	Troop carrying
Gannet	Airborne early warning	Anti-submarine search

60. Where aircraft are required to be available at short notice such as in close air support sorties, they must be flown off as air alert missions due to space limitations on the carrier's deck. Whenever possible air effort required from carriers should be included in the pre-planned flying programme.

Factors affecting carrier aircraft operations

61. Owing to the limited space in the carriers, flying programmes have to be carefully pre-planned to avoid congestion.

62. Carrier operations may be restricted by bad weather, particularly heavy seas, no wind or bad visibility. Owing to their mobility, however, carriers can seek better weather conditions, and may well be able to continue operations when airfields ashore are weather-bound.

Carrier operating formations

63. These will be influenced by the extent and intensity of the sea and air threat. Where these are negligible, carriers operate close to shore, protected by anti-submarine screen. Air or sea threats may force carriers to long-range operations.

Control and liaison

64. The Joint Operations Centre (JOC) or HQ ship will be the focal point of control for all air operations within the air force tactical area. A naval officer should be assigned to the JOC as naval representative to ensure that missions requested of the carrier force are within their capabilities. A liaison officer from the appropriate land and air HQ should also be provided on a temporary basis to the carrier task force commander before operations begin, to brief him on the tactical situation ashore. Thereafter briefing will be done by carrier-borne Ground Liaison Officers (GLOs).

Communications

65. The following nets may be provided by the carrier:—

(a) Naval Tactical Air Command net: links carriers with the JOC and naval representative.

(b) Air Request net: may be used for Reply Direct procedure with brigade (see Section 99). Links the carrier with the Air Support Operations Centre (ASOC).

(c) GLO net: links with airfields and the ASOC.

Section 99.— CLOSE AIR SUPPORT PROCEDURES

Categories of offensive tactical air operations

66. All offensive tactical air operations come into one of the following categories:—

(a) Pre-planned missions: conceived hours or even days before execution; the most efficient and economical means of employing tactical air.

(b) Immediate missions: flown in response to requests from the ground forces for immediate air action or from the appearance of unexpected targets discovered by air reconnaissance or other sources.

Requests for pre-planned air support

67. Requests which originate below the level of the highest army HQ in the field are passed through army command channels to that HQ. They are vetted and consolidated at every intermediate HQ. They are presented at the next JOC meeting as the army requirement for offensive air support.

68. If accepted by the JOC, the missions are ordered by the ASOC. Full details of acceptance are then disseminated to all concerned through normal channels. If time has become short, information may be passed to army formations over the Tactical Air Request net. Individual theatres lay down the time by which requests for pre-planned air support must reach land force HQ.

Requests for immediate air support

69. Requests for immediate air support, are passed direct to the ASOC over the Tactical Air Request net.

Normal procedure

70. Normal procedure for an immediate request for close air support is to pass it over the Air Request net direct to the ASOC, which then accepts (or refuses) it, and orders an air mission accordingly. From first request until striking of target should average 1 hour ± 15 minutes, but will vary depending on efficiency of communications and distance of airfield or carrier from battle area.

Reply direct procedure

71. The ASOC authorizes an airfield or aircraft carrier to monitor the Air Request net and respond direct to requests from a particular brigade group or battalion. This method is the simplest and quickest to use in a situation where only one brigade group or unit is likely to request immediate close support, and only one source of air effort (airfield or carrier) is suitably placed to provide it.

Ground alert procedure (Naval equivalent—deck alert)

72. Aircraft, held on airfield at a high state of readiness, are scrambled when ASOC receives an immediate close support request; then they are given target briefing in flight. This procedure is economical in air effort and signals traffic, and it reduces response time. But it depends on:—

(a) Forecasting the likely types of target, so that aircraft stand by with the right armament on.

(b) Having good ground/air radio for briefing in flight.

From first request until striking of target should average 45 minutes ± 15.

Air alert procedure

73. Aircraft support a particular brigade group or battalion by orbiting a contact point in the forward area, ready to be directed onto close support targets by the brigade or battalion concerned. This is the only method which gives really quick response, comparable with observed artillery fire. But it has several big disadvantages:—

(a) Ground-attack aircraft can only be kept orbiting when we have air superiority.

(b) It is very uneconomical in flying effort.

(c) Aircraft armed for the likely types of target, may not be effective against other types that occur unexpectedly.

In general, air alert should be used only for short periods to cover ground situations where quick reaction is the most important factor of all. With missions at contact point, time from unit request until striking of target should be 5-10 minutes.

Periodic air alert

74. The ASOC, on its own initiative, despatches an air alert mission to support a particular brigade group or battalion at regular intervals, eg, for first 15 minutes of each hour. This procedure is useful when the tactical situation is such that forward troops are frequently in need of immediate close support, but are out of touch with the ASOC—for instance because the normal nets (Air Request and Air Liaison) have not yet been set up, or have temporarily failed.

Sorties at call

75. The ASOC places an allotment of sorties on call to a forward formation, which then demands missions as required. The ASOC decides which aircraft should meet each demand. The merits of this procedure are that it gives a formation such as a brigade group:—

(a) An allotment of sorties, for planning purposes, to cover a specific period of operations.

(b) Freedom (within defined limits) to apply this effort how the formation wishes as the battle develops.

(c) A quick means of calling a mission forward in anticipation of targets, ready for air alert response when the target materializes.

SECTION 100.—MOUNTING AIR TRANSPORTED OPERATIONS

Scales

76. The limitations of transport aircraft and the fact that there will never be unlimited aircraft available will mean that air-

transported troops will have to move with a reduced scale of equipment and vehicles and often without all their administrative personnel. The vehicles and weapons which can be carried will depend on the type of aircraft available and whether equipment to be available from a stockpile on arrival.

Warning Order

77. The initial Warning Order of the instructions for the air move will contain the following information:—

(a) The type(s) of aircraft available and their payload(s).

(b) *The number of aircraft allotted* and the number of flights which each aircraft can make during the period of allocation.

(c) *The scale of equipment, weapons and personnel* to be taken. If these scales are not laid down by higher authority, they must be worked out by units, based on *(a)* and *(b)* above.

(d) *Whether units will move from their normal locations* to the base airfields, or whether they will move first to a transit camp.

Preliminaries

78. In the preparation and planning for the air move units will, therefore, include these steps:—

(a) *Preparation of unit air staff tables* for the type(s) of aircraft in use and with the scales of equipment, weapons and vehicles with which they will move,

(b) *Documentation* for the air move.

(c) *Air training* of all ranks.

Unit emplaning officer

79. Each battalion to be moved by air should appoint a unit emplaning officer. This officer should have attended an Air Portability Course at the Army Air Transport Training and Development Centre (Old Sarum) and should be capable of performing the duties listed in Section 102.

Movement to transit camps

80. Assault units should have an opportunity to rest between the loading of aircraft and the time of emplaning, and it will be advisable to move them to transit camps several days before emplaning, if time permits. Other factors which may affect the date of move to transit camps are the briefing facilities available at the camps and the transit situation for moving units to camps.

Sealing transit camps

81. If the operation is SECRET or TOP SECRET, it will only be possible to brief troops below company commander level after all chance of communication with the outside world is cut off. The disadvantages of doing this are that briefing can only take place a short time before take-off. Transit camps, or normal unit locations if transit camps are not in use, must therefore be sealed for this period.

82. To be effectively sealed each camp must be compactly laid out away from other military or civilian accomodation housing people not taking part in the operation. A manproof perimeter fence will be required with as few entrances and exits as possible, preferably one of each. These exits and entrances must be guarded by the camp permanent staff,

83. No one of any rank should be allowed out of the camp except in formed bodies for visits to the airfield or for essential training. Individual commanders and staff officers whose duties make it essential for them to leave the camp, should be issued with special passes. These passes must be kept to a genuine minimum.

Action in the transit camps

84. *(a)* As soon as the battalion arrives in the transit camp the Commanding Officer should establish close liaison with the airfield station commander and staff, with the Air Transport Liaison Officer and with the air-transport units on the airfield. The unit emplaning officer will be especially concerned with liaison as a whole.

(b) Sub-unit commanders down to company level and officers with special responsibilities for loading heavy equipment and emplaning troops should reconnoitre the airfield and in particular the loading and emplaning areas.

(c) Briefing and the issue of orders will be carried out.

(d) Any special equipment, such as life jackets, survival kits and escape aids will be issued.

(e) Aircraft loading tables and load manifests will be brought up to date. Alterations may be caused by minor changes of plan or casualties.

(f) Weapons and equipment will be checked and tested.

(g) Special attention must be paid to the physical and mental health of troops if the camp has been sealed.

(h) All ranks should be practised in their aircraft drills, such as emplaning, ditching and crashing procedure, and de-planing.

(j) Airfield procedure and discipline should be explained to all ranks. This will include strict traffic control on the airfield to avoid danger to aircraft; keeping clear of runways, perimeter tracks and hangars, rules for smoking and the maintenance of a high standard of control and discipline at all times.

(k) If any equipment needs dismantling before loading into aircraft, it will be done at this stage.

Liaison at airfields

85. To provide proper liaison between Army units moving by air and to the RAF airfield and transport units lifting them, an Army officer with a small staff is stationed permanently with each group, wing or squadron on transport airfields. These officers are the Air Transport Liaison Officers (ATLOs) and their duties and staff are described in Section 101.

Airfield lay-out

86. The ATLO will establish a check point at the airfield entrance. All army personnel will report here, where guides will be available to lead them to the correct loading or emplaning area. Units moving by air must be prepared to find these guides, who will be briefed beforehand and controlled by the ATLO.

87. A report centre will be set up close to air traffic control by the ATLO. This will be in line communication with all parts of the airfield, the transit camp and the HQ controlling the operation. Here will be kept a small stock of spare lashing gear and other equipment which might be needed at the last moment, and will be permanently manned by a member of the ATLO staff. All problems arising out of the emplaning of troops and loading of aircraft will be referred to the report centre where a representative of the battalion should also be stationed from the unit's arrival at the airfield until the last aircraft has taken off.

88. Loading areas will be laid down by the air force and shown on parking diagrams. These will show the number, location and sequence of take-off of the aircraft and the location of spare aircraft. Each area will be divided into numbered bays, and in the loading areas latrines will be erected.

Traffic control on airfields

89. Movement on an airfield is under air force control and will normally be run by a command post to which army representatives

are attached. This is a fixed post, clearly marked and should be in a direct line communication with air traffic control, the transit camps, the army report centres, the planing and loading areas, and will normally be close to the ATLO's report centre.

Movement to airfields

90. Troops for the first lift will move to the airfield in aircraft loads, each vehicle carrying one load for one aircraft only and marked with a chalk number corresponding to that of the aircraft. These numbers are taken from the aircraft loading tables. Timings should be worked out so that troops are not kept waiting about on the airfield before emplaning.

91. The second and subsequent lifts will remain in the transit camp, until called forward by the ATLO. The only exception to this is when aircraft are doing a quick turn-round between lifts, when to avoid keeping aircraft waiting at the loading and emplaning bays, it may be necessary to keep a small cushion of troops in the airfield.

Emplaning

92. For each aircraft a senior passenger must be appointed. He will complete and sign the load manifest.

Responsibilities for loading

93. Infantry battalions moving by air are responsible for loading their equipment, vehicles and weapons into aircraft fuselages in accordance with the current regulations for the aircraft in use and the piece of equipment being loaded. But the captain of the aircraft must always approve the loading of his aircraft, and the air force is ultimately responsible for the load and its effect on the safety of the aircraft. It is essential, however, that any battalion moving by air is well trained in loading aircraft, so that no readjustment is necessary.

Training aspects

94. The training wing of the Army Air Transport Training and Development Centre exists to train officers of all arms in aircraft loading, and every battalion should have officers and NCOs trained in this work available in each sub-unit.

Supply of equipment

95. The necessary lashing gear and loading equipment such as ramps and trolleys are supplied by the air force. The ATLO calculates from the lashing diagrams for that equipment the gear required. He is then responsible for arranging the provision by

the air force of this lashing gear and loading aids at each aircraft loading bay before loading is due to begin. Specialized items of equipment may require special manufacture from Army resources.

SECTION 101.—DUTIES OF AN AIR TRANSPORT LIAISON OFFICER

Functions

96. The ATLO is an Army officer established to an RAF air transport airfield for liaison duties. His functions are:—

(a) To act as the adviser to the Wing Commander (Flying) on all matters relating to the movement of troops and equipment on the airfield.

(b) To assist the units moving by air and to act as the link between them and the RAF.

Duties

97. Before an operation, an ATLO must have organized:—

(a) A check point at the entrance to the airfield.

(b) A report centre, permanently manned, and suitably placed in relation to the aircraft loading area and the air transport operations centre.

(c) A waiting area.

98. He is responsible for ground movement procedure on the airfield including:—

(a) Reception of troops and equipment.

(b) Marking the routes.

(c) Provision of guides.

(d) Parking diagrams, in conjunction with OC flying.

(e) Chalk numbering of aircraft and vehicle refuelling point.

99. He will agree the loading programme with the OC Flying and is then responsible for:—

(a) Providing the correct loading aids and sufficient lashing equipment at each aircraft.

(b) Calling loads forward by chalk numbers.

(c) Checking, and collecting a copy of the load manifest.

(d) If necessary, establishing a pool of low-priority troops and equipment.

100. So that any operation will run smoothly he must see that adequate communications are provided on the airfield and to the HQ controlling the move.

101. He will assist the OC Flying in arranging air training for Army units.

102. He will be responsible for briefing the aircrews on the Army aspects of exercises and operations.

Qualifications

103. An ATLO should be an officer who has the temperament and ability to mix well with the RAF. He must have a thorough understanding of air transport operations and be familiar with the aircraft and equipment in use. Before being posted to an ATLO appointment he should have completed the Air Transport Course at the School of Land/Air Warfare and the Air Portability Course at the AATDC at RAF Old Sarum.

SECTION 102.—DUTIES OF A UNIT EMPLANING OFFICER

Function

104. To assist his Commanding Officer in the training of his battalion in all aspects of airportability, so that it is capable of moving by air at short notice.

Training

105. **Sub-unit teams.** Loading teams each of one NCO and four men to enable a battalion to load its equipment and stores efficiently, should be available within sub-units. For uniformity of procedure they should be trained centrally in:—

(a) The loading and lashing of all sub-unit loads.
(b) Documentation for a move by air.
(c) Weight distribution required in aircraft.
(d) Safety precautions when loading and unloading aircraft.
(e) Airfield procedure.

106. **Individual training.** The training of all ranks in:—

(a) Rapid emplaning and deplaning.
(b) Various aircraft drills.
(c) Airfield discipline.

Battalion MT drivers must be taught to drive their respective vehicles into aircraft quickly and safely.

107. **Collective training.** The unit as a whole is to be trained in:—

(a) Documentation.
(b) Briefing.

(c) Movement to transit camps or temporary marshalling areas.

(d) Aircraft drills, including loading, lashing, emplaning, flight procedure and deplaning.

(e) Assembly drill after landing.

(f) Operation on reduced scales of equipment and transport.

Unit air staff tables

108. He should maintain unit staff tables at various scales of equipment. He should attempt to standardize bulk loads within sub-units and calculate in advance the number of lashings required for these loads.

In transit camp

109. While in transit camp his principle duties include:—

(a) Liaison with the ATLO.

(b) Making the final adjustments to unit aircraft loads and preparation of flight manifests.

(c) Informing ATLO of lashing gear and loading aids required at departure airfield and his requirements for unloading aids at the arrival airfield.

(d) Arrangements for the reconnaissance of the airfield by all sub-unit commanders.

(e) The practising, if possible, of all ranks in aircraft drill and airfield procedure.

(f) Assistance in briefing the battalion.

(g) Checking the issue of any special equipment, escape aids, survival kits, etc.

Move to the airfield

110. During the move to the airfield he will arrange for:—

(a) Loading battalion vehicles and heavy equipment.

(b) Marking vehicles with chalk numbers corresponding to their aircraft.

(c) Provision of NCO guides to supplement the ATLO staff at the report centre and regimental police for traffic control and airfield discipline.

(d) Careful co-ordination with ATLO for the call forward of each lift as required.

Emplaning

111. During emplaning and despatch of the battalion by air he will:—

(a) Supervise the loading and lashing of all battalion vehicles and heavy equipment in aircraft.

(b) Ensure that the senior passenger in each aircraft has three copies of the load manifest. One for the ATLO, one for the captain of the aircraft and one for retention.

(c) Liaise closely with the ATLO at the report centre where the operation will be controlled.

(d) Assist the ATLO in the clearance of any loads which may return and the evacuation of any casualties.

(e) Give overall supervision to the battalion whilst emplaning therefore he must travel in the last sortie of the battalion.

SECTION 103.—HELICOPTER OPERATIONS AND THEIR PLANNING

Introduction

112. This section is intended as a general introduction to helicopter operations and to some of the aspects which must be considered when such operations are being planned. The planning must be joint with the Air Force giving the necessary operational and technical advice to meet the Army's tactical plan.

113. Helicopters provide an excellent means of overcoming the limitations of tactical mobility and logistic support imposed by the use of air transport to move the Strategic Reserve brigade group quickly to the scene of action. Their use and limitations must, however, be clearly understood if the best and most flexible use is to be made of them.

General characteristics of helicopter operations

114.*(a)* Helicopters can attain objectives which cannot be reached quickly by ground forces owing to obstacles, bad going or enemy action.

(b) Troops can be landed in tactical formations ready for immediate action.

(c) Troops can be given considerable tactical mobility if their vehicles are landed alongside.

(d) There is considerable flexibility in their use as they can be switched rapidly from one objective to another, from tactical to logistic support and to meet requirements over a large area.

Limitations

115.*(a)* A strong force takes some time to build up and so each task must be within the capability of each lift.

(b) Helicopters use large quantities of fuel and thus increase the logistic problem.

(c) Helicopter performance deteriorates considerably in hot and high conditions.

(d) Single heavy loads can be carried only by the larger helicopters.

(e) Their use is more hazardous in flat open country.

Comparison with paratroops

116. *(a) Paratroops*

(i) Large force in a single drop.
(ii) Heavy equipment can be dropped.
(iii) Lack of tactical mobility and time taken to reorganize especially at night.

(b) Helicopter troops

(i) Several lifts of small forces required.
(ii) Better capability for a concealed approach to the exact chosen position.
(iii) Greater tactical mobility.
(iv) Greater flexibility.
(v) The operation can be more easily modified to meet a changing situation.

Tactical trooplift roles for helicopters

117. There is probably no type of non-nuclear operation in which helicopters, used in the tactical troop lifting role, cannot be usefully employed. Some examples are:—

(a) Offensive tasks by-passing enemy defences

(i) Direct attack on lightly-held objectives and vulnerable areas: HQs, signal communications, flanks, administrative areas, by landing on or close to the target.
(ii) Indirect attack on more solidly defended targets by quickly building up the required force in the nearest soft area whence the final assault can be mounted on foot.
(iii) Diversionary action by dummy landings.

(b) Defensive tasks

(i) Providing a mobile reserve and counter-penetration force.
(ii) Surveillance of gaps between defended areas by landing troops in suitable OP areas.
(iii) Protect lines of communication.
(iv) Regrouping, particularly over difficult ground.
(v) Movement of flank-guards, rear-guards and demolition parties.
(vi) Increasing fire effect by the quick redeployment of guns and weapon systems.

Vulnerability of helicopters

118. Helicopters by low flying and making all possible use of natural cover can reduce their chances of being seen by the enemy but, like all soft-skinned vehicles, are vulnerable to small arms fire. On the other hand if they fly higher they are liable to be shot down by enemy fighter aircraft and anti-aircraft weapons. It is important therefore that the vulnerability of helicopters be carefully assessed against that of doing the job by other means.

119. In the logistic role the aircraft will normally be operating between secure landing sites. The greatest danger lies in the transit phase but this can be reduced by flying clear of known defended areas and by flying at or below tree-top height.

120. At the objective the aim must be to land where small arms and enemy artillery fire cannot be readily brought to bear. In extremely close country by using surprise it might be possible to launch a direct attack onto an enemy lightly-held objective. In open country, however, daylight operations might be possible only if the troops are landed some distance away and the final assault is made on foot. By night it might be possible to land closer to the objectives but with some loss of concentration, but night operations call for considerable preparation, including the use of pathfinders, with a consequent possible loss of surprise.

121. *Selection of objectives.* The following must be considered:—

(a) Enemy location and strength, remembering that the helicopter is not an assault vehicle.

(b) Proximity and availability of suitable landing sites.

(c) Topography to give necessary cover on final approach to landing sites.

(d) Fire support available.

(e) Ability to resupply, reinforce or evacuate.

Selection of landing sites

122. The principal factors to be considered are:—

(a) Proximity of objective(s) bearing in mind enemy strengths and locations.

(b) Suitability for landing and take off.

(c) Approach and return routes avoiding flying hazards and enemy locations.

(d) Suitability for logistic follow-up.

(e) Proximity, availability and suitability of alternative landing sites which are free from enemy observation and small arms fire.

Assessment of troops to tasks

123. *(a) Size of first lift* is particularly important for landings near the enemy. Not only may the first lift have to gain their objective but they may have to hold a large area against enemy counter-attack until the second and subsequent lifts arrive. This means that the size and composition of the first lift will depend largely upon the rate of build-up which can be expected.

(b) Rate of build-up must be assessed carefully against the anticipated enemy build-up.

Operating in waves or streams

124. RM Commando experience has shown that, in most cases, the military requirement calls for the initial landing to be that of a balanced force. This may call for the early aircraft to operate in waves but once the initial Army requirement has been met it may be possible to reap the advantages of operating the aircraft in a stream: fewer delays and better utilization of aircraft.

Route

125. The routes selected need to avoid known areas of enemy fire and to make the best use of concealed approaches to avoid detection, both visual and radar, by the enemy. In close country the helicopters will generally fly at or beneath tree-top levels which complicates the navigational problem. No aids at present exist, and a navigator in the lead helicopter is required. With single-wave operations the return route may well be the same as the outbound but with several waves of helicopters the return route must not clash with later waves on their outbound route. Consideration of alternative routes and the selection of suitable timings and control points is also necessary. In addition the activities of other aircraft in the area will also have to be considered.

Timings

126. Calculate timings in reverse sequence:—

(a) By what time must the task be completed?

(b) When must the build-up be finished?

(c) To do this, at what time should the first wave land?

(d) What are the timings at turning points, check and control points and times of airborne for all aircraft?

Reconnaissance and fire support

127. The planning staff has to decide the scale of fire support necessary:—

(a) To restrict enemy movement.

(b) To neutralize known enemy locations which can effectively interfere with the build-up.

(c) To ensure the safety of the helicopters on the way to the objectives.

128. It may also be desirable to use smoke to afford protection to the helicopters or to screen an area. Its value must be assessed against the risk of confusion to the helicopters and/or the troops becoming disorientated after deplanning, should the smoke confuse them.

129. Loss of surprise must be assessed and the need for neutralization.

130. In most instances landing sites will have to be selected from maps and air photos. Without these readily available it might be necessary to fly special reconnaissance sorties.

Allocation of troops to aircraft

131. As soon as the availability of aircraft is known troops must be allocated to aircraft to suit the tactical plan. Normally this will be done by a pre-arranged chalk number system but it is important to ensure that the positioning of the individual aircraft at the rear and forward landing sites is clearly understood by the troops at their briefing.

Need for pathfinders

132. It may be necessary to land a pathfinder party to clear and mark the landing sites in accordance with the agreed plan, and to control the arrival of the helicopters. If the operation is certain to be unopposed it may be possible to land them by helicopter shortly before the first wave comes in. On other occasions it may be necessary to drop them, and their equipment, by parachute.

Night operations

133. Although the helicopter can operate at night, a slower rate of build-up must be accepted because of difficulties of separation and control at the landing sites. These should be lit and this calls for marking parties to be with the pathfinders. At present night operations are difficult, due to instrumentation and navigational problems.

Operational command and control

134. A proposed Joint Warfare Policy Statement on the operational command and control of helicopters is summarized below:—

(a) When operational or tactical control of SRT helicopters acting in support of land force is delegated forward to the joint agencies, the Force Air Commander is to issue an appropriate directive to the officer to whom operational/tactical control is delegated. The directive is to be copied to the officer in command of the land force being supported.

(b) When operational/tactical control is so delegated and disagreement arises concerning the use of the helicopters, the final decision is to rest with the officer in command of the land force being supported if time does not permit recourse to higher authority.

(c) When in-flight decisions are required to be made, the senior helicopter captain and the officer in command of the force being lifted, flying together, are if possible to reach a joint decision. Failing this, the responsibility for final decision is to rest with the senior helicopter captain.

(d) Naval helicopters based ashore, and operating other than solely with their associated RM commandos, will be placed under the operational command of the Force Air Commander.

(e) Operational control of naval helicopters supporting land operations, but based aboard for convenience, should be delegated either to the senior Royal Marine officer or to the Air Commander depending on the composition of the military force.

Training

135. The helicopterborne operation is joint and a high standard of unit training, both Army and RAF is essential. Furthermore it is desirable that the Army unit being lifted should have worked previously with the Air Force squadron providing the airlift. A particular responsibility lies with Infantry battalions who need to have a thorough knowledge of the following:—

(a) Selection and marking of landing sites.

(b) Emplaning and deplaning drills.

(c) Airportability of equipment particularly the rigging of loads peculiar to the unit.

(d) Marshalling signals.

Section 104.—AEROMEDICAL EVACUATION

Policy

136. Aeromedical evacuation is now an accepted and important part of air transport support operations. All categories of transport aircraft are therefore equipped for aeromedical evacuation tasks. These are life-saving operations of great morale value.

Responsibility

137. The RAF is responsible for the reception of casualties at the emplaning airfield/airstrip; medical care whilst in flight and until the casualty is returned to parent service care. The Army is responsible for getting patients to the emplaning airfield/airstrip.

Organization

138. The organization for aeromedical evacuation consists of:—

(a) Aeromedical evacuation coordinating officer: a RAF medical officer fully conversant with all aspects of aeromedical evacuation. He is responsible for:—

(i) Maintaining close liaison with the air staff regarding the employment of transport aircraft.

(ii) Advising the medical authorities of the other services where to concentrate patients for air evacuation.

(iii) Deploying the aeromedical evacuation units.

(a) Aeromedical evacuation unit (AEU): a unit of two flights responsible for receiving patients, providing continuation treatment for them and holding them until loaded into aircraft. The complete unit is capable of dealing with 100 casualties in any day and holding 40 overnight. When individual flights are deployed their capability is approximately half that of the AEU.

Procedure

139. When a forward airstrip is to be used for an operation a flight of the AEU should be flown in early to be ready to receive casualties.

140. Normally aeromedical evacuation is linked with air maintenance as a return load, but there will be occasions when it has to be arranged as a separate task. Also, there may be occasions when casualties in the battle area will have to be evacuated by aircraft of the Army Air Corps.

141. In all cases the Army is responsible for bringing the casualty to the aircraft pick-up point. This may be by stretcher bearer, truck, ambulance or Army Air Corps aircraft.

142. At the rear airfields the Army is again responsible for clearing the casualties to military hospitals. Those casualties for further aeromedical evacuation remain in RAF care.

Section 105.— THE ARMY AIR CORPS

Scope

143. A chapter on air support for the Infantry battalion would be incomplete without an appraisal of the functions and capabilities of the Army Air Corps itself. Its main function is to provide military tactical commanders with air mobility on the battlefield, primarily for purposes of reconnaissance and liaison.

Size limit

144. The AAC is restricted to helicopters and fixed-wing aircraft up to 4000 lbs. gross weight, though certain types up to 5000 lbs. are allowed in practice. This amounts to a 5/6-seater limit. Larger aircraft are the responsibility of the RAF.

Main tasks

145. *(a) Battlefield surveillance roles*

(i) Visual reconnaissance: by the pilot or specialist passenger.
(ii) Air photography: oblique or vertical.
(iii) Surveillance: by electronic means.

(b) Fire support roles

(i) Artillery observation: by the pilot.
(ii) Forward Air Controller for ground attack aircraft.
(iii) Armed helicopters: a possible future role.

(c) Battle control roles

(i) Commander's rover or air command post.
(ii) Liaison.

(d) Passenger roles

(i) Tactical movement of patrols or small parties of troops (future).
(ii) Intercommunication.
(iii) Collection of urgent casualties.

(e) Cargo roles

(i) Signals courier.
(ii) Delivery of light stores.

Aircraft types

		Seats	*Role*
146.*(a)*	Beaver (L.20)	6	Liaison; fixed wing.
(b)	Auster 9	3	Reconnaissance, fixed-wing.
(c)	Skeeter	2	Reconnaissance helicopter in Europe.
(d)	Alouette 2	5	Liaison and reconnaissance helicopter possibly replacing Skeeter eventually.
(e)	Scout	5–6	

Radio

147. Each aircraft carries two sets, with mixing box:—

(a) Army VHF: for working to net of ground unit supported.

(b) RAF VHF (future UHF): to local airstrip for flying control and safety, eg, nuclear dazzle warning, and to homing/navigation aids.

Aircraft servicing

148.*(a)* 1st line: by REME attached to flight.

(b) 2nd line: by REME Workshops at squadron/wing level.

(c) 3rd and 4th line: handed over to the RAF.

Normal deployment

149. Arranged by wing and squadron HQs as directed by formation's G (Air) or G staff. Usually:—

(a) Whole reconnaissance flight is in support of its affiliated brigade group, less any aircraft kept under squadron control for divisional tasks.

(b) Liaison flights may serve their own formation HQ or be sub-allotted to a division or brigade for a particular operation.

(c) In general, aircraft have to be located close to probable users, e.g., flight in the brigade area.

Channels for booking aircraft

150. If a battalion is given a detachment of aircraft in support, it deals direct. But if aircraft are kept under brigade or higher formation control:—

(a) The battalion sends short requests to formation HQ via command channels.

(b) Formation's G (Air) or G staff pass approved requests to the local AAC unit.

(c) Pilot concerned visits the battalion, if possible, for detailed personal briefing.

Vulnerability of airstrips

151.*(a)* Avoid shell fire or air attack by concealment. Aircraft must take-off and land by low-flying techniques which cannot be observed by the enemy.

(b) Locate the airstrip close to a major unit, for protection against enemy ground patrols, etc.

Vulnerability of aircraft

152 *(a)* If aircraft fly high there is a threat from enemy fighters, AA weapons, and our own artillery trajectories. They usually have to fly low, popping up to about 300 feet to observe.

(b) Once aircraft fly low, the greatest threat is from enemy small arms. Aircraft survive by the classic Infantry method of keeping in dead ground, where known enemy cannot see them.

Pilot's visibility

153. When operating from low level this is normally about 5,000 metres ahead. If enemy vehicles or men are moving, the pilot is likely to see them before they see him but if the enemy is halted and under cover it is equally probable that they will see the aircraft first, and may open fire.

Opportunity targets

154. All pilots are trained to adjust artillery fire. Thus if when carrying out other tasks they see something which merits immediate punishment, they can flick radio to the on-call artillery unit and engage the target.

Photography

155. All aircraft should be fitted so that a camera can be clipped on for vertical or, more usually, oblique photos. But due to phasing out of obsolete aircraft and cameras, only one or two aircraft per flight are at present fitted.

Future trends

156. A higher proportion of helicopters is favoured in order to give forward forces more versatile and intimate support. Fixed-wing will remain chiefly for longer-range liaison tasks.

157. When 5-seat helicopters are available at brigade level they may be used to lift Infantry patrols, and to help them with fire support from air-observed artillery or armed helicopters.

158. All-weather capability is likely to be achieved mainly by improving the instrumentation of aircraft. Also by use of electronic surveillance devices in aircraft for certain tasks.

CHAPTER XXV

INTERNAL SECURITY

SECTION 106.—INTRODUCTION

Principles

1. The sole aim of military intervention in this type of operation is to restore law and order by military means when other methods have failed or appear certain to fail. Close co-operation with the civil authorities and police are requirements of the first importance.

2. Speed is an essential to prevent unrest developing into full scale guerilla war, and can be achieved only by having adequate military forces available to intervene promptly in supporting the local government, so that it can react firmly to the threat of its existence.

3. Police should normally be used on police tasks. The Army should be used for tasks for which, of course, they are trained and equipped, and which may vary from supporting the police in built-up areas to deep-penetration anti-terrorist operations.

"Keeping the peace"

4. The revised edition (1963) of "Keeping the Peace" is in two parts: Part I—Doctrine (W.O. Code No. 9800) and Part II—Tactics and Training (W.O. Code No. 9801). It gives the principles and methods by which Infantry execute their tasks in Internal Security operations.

SECTION 107.—SPECIALIST SUB-UNITS

Reconnaissance platoon

5. The platoon can be used for reconnaissance in advance of or on the flanks of movement, patrolling, OP work, surveillance of villages, escorts and mobile patrols along railways and pipelines. The trained observers of this platoon fill a long felt need and should treatly assist in obtaining information.

6. The platoon may use radar or infra red when it is available to watch areas where movement is prohibited, especially at night. This enables the platoon to detect terrorist movement which in the past would have gone unobserved.

Intelligence section

7. Although the new establishment does not allot an intelligence clerk to each company, which may frequently be necessary during Internal Security operations, it may be possible for two companies with specially important roles to be given one each.

Assault pioneers

8. There is often a requirement in undeveloped countries for the construction of tracks, ferries and even rough improvised bridges to enable troops to reach a particular area or as part of a plan to achieve surprise by avoiding main roads, through inhabitated localities. The increase in the number of assault pioneers available for tasks of this kind is therefore welcome. Appendix "A" to Part II of "Keeping the Peace" outlines the responsibilities of assault pioneers in the detection and disposal of mines and booby traps.

Company support platoons

9. Within companies, support platoons can be employed as additional rifle platoons, if not required in their normal roles. The extra manpower will help to meet commitments when companies are detached.

10. Company commanders may use their support platoon commanders for liaison duties with Special Branch. When Special Branch representatives are not available and detached companies have to set up their own Intelligence organization, the support platoon commander can function as Company Intelligence Officer.

CHAPTER XXVI

ADMINISTRATION

SECTION 108.—INTRODUCTION

Administrative resources

1. The aim of Infantry commanders at all levels is to ensure that the best possible use is made of the administrative resources available to them. These are:—

(a) The personal services available within the battalion for the well-being of the soldier.

(b) The medical services.

(c) The maintenance system which produces the battalion's equipment, arms and vehicles and replenishes its ammunition, petrol and supplies of all kinds.

(d) The recovery and salvage system.

Replenishment

2. The battalion is replenished by collecting commodities in its own transport from Delivery Points set up in the brigade group administrative area.

3. Evacuation and replacement of men and materials and the collection of ordnance stores, pay and mail is through special administrative units located in the brigade administrative area.

4. The system of demanding and receiving replacement stocks and other requirements varies with each commodity—ammunition, POL and supplies—and is described in more detail in Section 111.

SECTION 109.—PERSONAL SERVICES

"Of priests we can offer a charmin' variety, Far renowned for Larnin' and piety"—A. P. Graves—Father O'Flynn, 1875.

5. These are the services which maintain the soldier's morale and enthusiasm by keeping him fit and contented: health, welfare, pay, food and so on.

Health

6. The physical and mental health of the soldier is reflected in his enthusiasm, determination and ability to fight. His health is dependent on:—

(a) His living conditions in the field.

(b) The prevention of the spread of communicable diseases.

Living conditions in the field

7. The soldier's living conditions in the field are the responsibility of his officers who must ensure that conditions are the best possible in the prevailing tactical and geographical situation. This involves taking such measures as:—

(a) Protection against extremes of climate, including the provision of adequate clothing.

(b) Provision of adequate meals and water supply.

(c) Provision of facilities for personal hygiene, including bathing and laundering.

(d) Enforcement of rest.

Communicable diseases

8. Communicable diseases which are spread from soldier to soldier have caused heavy and often disastrous losses in recent wars. They include:—

(a) Airborne diseases, such as influenza and diphtheria.

(b) Contact diseases, such as venereal and infectious skin diseases.

(c) Intestinal diseases, such as dysentry, enteric and cholera.

(d) Insect-borne diseases, such as malaria and typhus.

Hygiene

9. Control of communicable diseases calls for good hygiene discipline and the prompt application of preventative measures such as:—

(a) Correct sanitary disposal of human, animal and kitchen waste.

(b) Inoculations and vaccination.

(c) Regular health inspections by the medical officer.

(d) Regular feet inspections by the regimental officer.

(e) Supervised bathing and laundering.

(f) Use of insect repellents and insect-proof nets.

Welfare

10. Despite difficulties in the field, it remains the responsibility of every officer to watch the welfare of his men at all times, even in the forward section post. Welfare in the field includes religious, moral and physiological aspects as well as amenities.

The chaplain

11. The chaplain, though unarmed, accepts the same hazards as the soldier in battle. He is to be found based officially at

battalion HQ, though frequently at the Regimental Aid Post. His ministry, however important to the wounded, is equally offered to the soldier in combat. Thus he seeks, through his association with the Regimental Aid Post, to minister to the wounded and, through his attachment to battalion HQ, to visit and to minister to the individual companies.

12. The chaplain should be included in such O groups as will enable him to plan his work both intelligently and in advance. Full facilities should be given him to conduct Services, as well as to minister to the individual needs of the soldier.

The soldier's problems

13. Every soldier sooner or later wants advice or help on his personal and domestic problems. It is the duty of every officer to make himself accessible to his soldiers in the field so that they all know that they can raise their problems. Help may take the form of:—

(a) Leave, in urgent cases.

(b) Correspondence on the soldier's behalf.

(c) Arranging interviews with the battalion commander.

(d) Providing writing materials, etc.

Information

14. Reliable and up-to-date information on the progress of the battle, on the war in general, and on domestic news, is an important factor in the soldier's welfare. This is provided by:—

(a) Frequent briefing on the battle situation.

(b) Circulation of news sheets.

(c) Prompt delivery of mail and circulation of newspapers.

Amenities

15. Nothing is worse for the soldier's morale than having periods of nothing to do during which he can brood over his lot. When he is not actually fighting or working, the aim should be to provide the necessary amenities to keep his mind occupied. These include the provision of books, magazines, cards, darts, footballs, etc, for use when the tactical situation permits. A stock of these amenities should be kept for this purpose in the company transport.

Pay

16. Although a soldier spends relatively little money in the field he must have some to buy what he needs from NAAFI/EFI. His chief concern will usually be the prompt payment of

all allowances and remittances from his credits to his dependants. When the battalion is dispersed in the field, it will be the responsibility of the company commander to collect the cash requirements of his company and to arrange some system for paying out his men.

Dependant's allowances

17. Dependants' allowances to which the soldier may be entitled are published in Battalion Part II Orders, on receipt of which the Regimental Paymaster concerned makes arrangements for the allowances to be issued through the Post Office. Voluntary allotments are also issued by the Regimental Paymaster after the soldier has applied on the appropriate form through his battalion for payments to be made. Remittances can also be made through the Army Post Office.

18. As allotments and remittances are matters about which a soldier will often require immediate advice, and as the pay clerk will rarely be available in the forward positions, the company commander must have a sufficient knowledge of the current regulations to give this advice.

Food

19. Cooking in the field may either be centralized under battalion arrangements or put under company control. In either case it will normally be done in the battalion A echelon area, under the direct supervision of the CQMS. The method of delivery will depend on the tactical situation but in forward areas and when air attacks are threatened, each meal will be broken down to platoon requirements before it is brought forward. In defensive operations cooking may be done in company areas.

20. To ensure that the food is edible and hot and that the diet is varied, the company commander must ensure that:—

(a) The best possible use is made of the food containers and insulators issued to the company.

(b) The construction of improvised cooking apparatus is encouraged.

(c) Waste is eliminated.

(d) There is a high standard of cleanliness.

21. It may be necessary, for tactical reasons, to send rations forward uncooked and for soldiers to cook for themselves in their section posts. To meet this contingency, training should be given in mess-tin cookery with both fresh and composite rations.

Field cooking equipment

22. *(a)* The cooking equipment of the future will be designed on the same principles as at present but improved versions will come into use.

(b) Individual cookers will form part of the combat ration for use when group cooking is not possible.

SECTION 110.—MEDICAL SERVICES

First aid

23. An important psychological factor in maintaining a soldier's morale is the knowledge that his comrades are trained to care for him if he is wounded. Every soldier must therefore have a basic knowledge of first aid. This should cover:—

(a) Use of first field and shell dressings.

(b) Application of tourniquets.

(c) Artificial respiration.

Marking of battle casualties

24. It is not always possible to give first aid or to recover casualties immediately. Before being left, casualties must therefore be put in a position where they cannot be run over by tanks, APCs or other vehicles. If this is not possible, they must somehow be marked so that stretcher bearers can locate them and tanks and other vehicles avoid them.

Evacuation of battle casualties

25. Responsibility for collection and evacuation is from rear to front. The system and method of evacuation is:—

(a) Forward of company HQ: by company stretcher to company HQ and/or by bearers or ambulance to battalion axis.

(b) Rearward of the company: by battalion ambulance to RAP.

26. In mobile operations, company stretcher bearers will normally carry casualties to the battalion axis where they will be collected by battalion ambulance vehicles.

27. Walking wounded will be directed to the RAP or to a collecting post on the battalion axis. Lightly wounded personnel may be used for escorting other walking wounded or PW.

28. At the RAP, casualties are diagnosed; emergency first aid, including morphia if necessary, is given; and each casualty is documented. At the RAP, all G 1098 stores such as arms, binoculars and watches are removed and returned to the quartermaster.

APCs

29. The use of APCs poses particular problems of casualty evacuation. If casualties are kept in the APC, the morale of the rest of the section may be seriously affected. On the other hand, in a fast-moving operation across country, it is scarcely feasible to dump a casualty in the hope that he will be picked up later. The APC can be driven to an RV on the battalion axis but this means that one whole section is non-effective while this is being done. The method adopted must depend on circumstances at the time but serious thought must be given to the problem.

Evacuation in rear of the RAP

30. Casualties are normally evacuated from the RAP in ambulance cars of the brigade group Field Ambulance to the Advanced Dressing Station (ADS). Urgent cases may, however, be evacuated by helicopter.

31. Casualty Collecting Posts (CCPs) will be established if the distance from the RAP to the ADS is excessive, or if an obstacle or potential obstacle is on the evacuation route. They will be located as far forward as possible on the axis where each can best serve the maximum number of units. Sometimes, for example, when one battalion is operating to a flank, a CCP may be set up to support it. The CCP is formed by a section of the Field Ambulance. A Field Surgical Team (FST) and Field Transfusion Team (FTT) will often be attached particularly where a brigade group is operating on its own, thus enabling emergency major surgery to be carried out forward.

32. Casualties are sorted into priorities at the ADS. If there is no FST forward, Priority I casualties are evacuated in corps ambulance cars or aircraft, either to an Advanced Surgical Centre or to a Casualty Clearing Station (CCS). The remainder go direct to a CCS. From the CCS all go to a general hospital and thence to the main base.

Sick and minor casualties

33. All minor sick, slight casualties and mild battle exhaustion cases go from the RAP through to the ADS to the Field Dressing Station or any other medical unit whose function it is to hold such patients until they are fit to return to the battalion.

Medical stores

34. *(a) First Field Dressing:* it is planned to replace both the existing First Field Dressing and Shell Dressings by a single item. The new dressings will almost certainly be the same as the new United States Army "Dressing First Aid Field". This dressing is about $7\frac{1}{2}'' \times 8''$ and is secured by two bandages.

(b) Morphine: The use of morphine is most rigidly controlled under peace conditions, and its administration is wholly restricted to qualified medical personnel. Restrictions are relaxed in theatres of active operations where morphine may be issued to companies and platoons. In such conditions, the issue of morphine would be to company and platoon commanders and senior NCOs, all of whom would be instructed in its use and dangers; morphine should not be made an issue to individual troops. Morphine supplied to the RMO is for his own use; any issues on the lines indicated above can only be made under special arrangements by the higher formation. The morphine is normally issued in syrette form (as a small tube with needle attacked for easy administration), each syrette representing one dose. Scales of issue obviously vary with the expected rates of casualties; the best principle to follow is to issue the minimum required and keep a central reserve under the RMO at battalion HQ.

SECTION 111.—THE MAINTENANCE SYSTEM

Maintenance within the battalion

35. Rifle companies are provided with ammunition, food, water, POL replacements for arms, clothing and equipment and with their mail through the A and B echelons of the battalion. Items are drawn up in bulk in B echelon transport and brought either to the A echelon where bulk is broken to sub-unit requirements, or, in certain cases, delivered direct to the company area. Delivery from A echelon to the company is the responsibility of the CQMS, using transport allotted to the company.

Stocks within the battalion

36. Reserve stocks of rations, POL, arms, clothing, equipment and a proportion of the unit's first-line scales of ammunition are held in B echelon. These are replenished as soon as they are used. In addition, certain commodities such as rations, POL, ammunition, signal stores and MT spares, are normally held forward in A echelon.

Ammunition

37. Ammunition is replenished, without indent, through an Ammunition Point (AP) consisting of a number of RASC vehicles holding the various types of ammunition. Battalion transport, normally from F or A echelon, collects the battalion's own requirements whenever necessary. Ammunition points remain

open at all times during operations. In addition to ammunition, mines to be laid by the battalion are usually collected from the AP. Large consignments may be delivered direct to the battalion.

Rations

38. Rations are drawn daily at given times in unit vehicles from a Supply Point (Sup P) set up by the RASC. Times of drawing are laid down to avoid traffic congestion and wasted time. Indents for rations are required, usually 48 hours in advance.

POL

39. POL is drawn as required in battalion vehicles from a Petrol Point (PP). This, like the AP, consists of RASC vehicles, containing MT Gas, DIESO and lubricants. POL is issued without indent on the simple basis of one full can for each empty one returned.

Ordnance stores

40. Ordnance stores, such as weapons, radio sets, clothing and other general stores are obtained by indenting on the Ordnance Field Park (OFP) serving the brigade group. Items in stock will be drawn by the QM over the counter. Items not in stock will be obtained by Ordnance from depots in rear for collection later from the OFP.

41. The release of certain items such as vehicles, radio sets and scarce items is controlled by the staff. Indents for such items must normally be supported by a certificate signed by the brigade group EME officer to the effect that the existing equipment is beyond local repair.

Medical stores

42. Stocks of medical stores and equipment are held by the Field Ambulance. The regimental medical officer is responsible for demanding and obtaining the battalion's requirements whenever necessary.

Water

43. Water is drawn in the unit water truck or trailer from a Water Point (WP) established by the engineers. If the source of supply is beyond the range of unit transport, it will be delivered by the RASC to the DP. Water issued from Water Points will already have been tested at source by the RAMC, and purified.

Postal

44. Prompt delivery of mail is essential for the maintenance of individual morale. Post is collected by the battalion from the

Field Post Office in the brigade group administration area. Where a Field Post Office is established a Mail Point will be set up by the Divisional Postal Unit. The Field Post Office provides a wide range of facilities normally given in the Post Office: postage stamps, registered envelopes, postal orders and money orders. Private telegraph facilities and newspaper delivery may also be undertaken, where practicable.

Reinforcements

45. Reinforcements for the battalion are sent, subject to their availability, from the Corps Reinforcement Unit to a collecting point, probably in the brigade group administrative area, from which they are collected in battalion transport. Reinforcements will not arrive unless they are asked for and this can only be done by submitting accurate daily strength returns showing the battalion's deficiencies.

SECTION 112.—REPAIR, RECOVERY AND SALVAGE

"Drive into something cheap!"
Lord Westbury, to his coachman when the horses ran away

Vehicles

46. Vehicle casualties are extricated and backloaded by REME. In the battalion area, this is done by the Brigade LAD or by the Recovery Section of the Infantry Workshop controlled by the brigade EME. Field repairs are carried out by an Infantry Workshop. Successful recovery and subsequent repair depends largely on the battalion rapidly and accurately reporting each casualty, as it occurs.

Returned stores

47. All surplus and unserviceable but repairable stores are returned by the QM to the Ordnance Field Park. Other salvageable material, including enemy equipment, will, whenever possible, be collected in dumps for future removal. This will be done by all units except those in contact with the enemy.

SECTION 113.—ADMINISTRATION IN NUCLEAR OPERATIONS

"Men do their broken weapons rather use, Than their bare hands"—Shakespeare—Othello

General

48. The tactical emphasis on dispersion and mobility calls for a re-appraisal of the present system. The following paragraphs outline some of the major problems that will arise.

Medical

49. Enemy nuclear weapons may cause heavy casualties over large areas. The entire medical system would then be confronted, suddenly and simultaneously, with large numbers of wounded, the majority of whom will require treatment for burns or radiation sickness. To cope with the numbers involved, it may be necessary for more treatment to be given in forward areas than is done at present and for relatively large stocks of the necessary medical stores, blood, penicillin and burn dressings to be held forward in the RAP.

50. The problem of evacuation is also complicated since, in addition to the greater numbers, distances involved in the forward areas will be greater and each stage in the evacuation system may have to take in additional casualties from its immediate area. Within the battalion, more ambulance vehicles will probably be needed to allow distribution down to each company group. In rear of the battalion, the system may have to be sufficiently flexible to allow casualties to be held further forward, should this become necessary, and to enable the channel of evacuation to be switched suddenly. The increased use of helicopters for evacuation from forward areas should also be invaluable.

Decontamination

51. Troops exposed to radiation fall-out will require a complete change of clothing and equipment. The tactical situation will often demand that this is carried out in forward positions. Since it will not be practical to hold sufficient stocks in the battalion or brigade areas, this may necessitate the rapid distribution of stocks direct from the base area; perhaps by air drop onto company DZs.

Maintenance

52. The main factors likely to affect the present maintenance system in the brigade area are:—

(a) The distances involved with the dispersion envisaged.

(b) The difficulties of re-supply to company groups if the enemy has successfully infiltrated.

(c) The vulnerability of stocks on wheels.

(d) Probable contamination by radiation of rations and water.

53. Since the system may be disrupted at any stage, sections, support weapons and vehicles will most likely have to be self-sufficient and hold stocks to last for several days. Rations, in concentrated form, present no problem other than of protection from radiation but to keep the required stocks of ammunition,

POL and water within reasonable limits for transportation, strict conservancy of all three will have to be enforced.

54. The vulnerability of the commodity point system and the wide and deep dispersion within the brigade may necessitate a revised system of supplying units. Perhaps a battalion's requirements will be brought into the battalion area by the RASC and dumped at a pre-arranged point or points from where it can be collected, as and when the situation permits, possibly direct by sub-units. Re-supply by air or by missile direct to sub-units may eventually be developed.

Administrative transport in the battalion

55. Vehicles for casualty evacuation and maintenance need to have the following capabilities:—

(a) Good cross-country performance.

(b) Protection against nuclear explosions.

(c) Protection against aimed small arms fire.

The APC battalion logistic concept

56. Vehicle dispersal and the provision of effective local defence give rise to major problems of grouping into echelons. It may therefore be necessary in battle for company group to be administratratively self-contained and responsible for their own replenishment. The established system of echelons might, in these circumstances, disappear. Essential functions such as battery charging, vehicle repair and recovery would have to be undertaken either at the command post or at a small administrative control HQ.

57. F and A echelons should carry up to five days supplies and three or four days ammunition and POL. These loads will be distributed between APCs, each carrying its own supplies for crew and passengers.

58. RASC second-line transport may deliver to battalion A echelon area where supplies and ammunition will be broken down and distributed to company groups by company load-carrying vehicles.

59. Further details of this concept are discussed in Chapter XII.

Section 114.—PRISONERS OF WAR

60. Prisoners of war are a very useful scource of information about the enemy but unless they are handled properly from the moment of capture the best value will not be obtained from them.

61. After capture the following action should be taken:—

(a) Prisoners will be disarmed by forward troops and searched for concealed weapons and documents. Any identification should be passed to battalion HQ.

(b) Prisoners will then be evacuated under escort to the Battalion Collecting Point, together with any documents or equipment which may have been found in their possession. If time permits, a brief report giving circumstances of capture should accompany the prisoners.

(c) If possible officers and senior NCO's should be segregated from junior ranks.

62. On their arrival at the Battalion Collecting Point which may be manned by battalion provost staff, an attempt should be made by the intelligence officer or a member of his section to obtain the identification of the unit from which the prisoners come, either by simple question or by examination of documents. There should be no attempt at interrogation at this stage as unskilled interrogation may prejudice prisoners' value as sources of information to trained interrogators at brigade or corps HQ.

63. Prisoners should then be despatched under escort to the Brigade Collecting Point or Brigade Cage together with any documents found on them.

Section 115.—CAPTURED DOCUMENTS AND EQUIPMENT

64. It must be impressed upon all ranks that looting of enemy documents and equipment may mean the loss of valuable sources of information. All ranks must realise the importance of passing back captured documents and equipment to battalion HQ.

65. Documents and equipment should be labelled and passed back to brigade as ordered in local standard operating procedures.

66. Documents found on prisoners should of course always accompany the prisoners.

67. If equipment cannot be moved, its type and location should be reported to brigade HQ. If necessary it should be placed under guard.

APPENDIX A

SPECIAL CHARACTERISTICS OF FV 432 APC

1. General

Vehicle Type:	APC
Crew	Two: driver and vehicle commander

Personnel	10 Infantrymen
Weight Laden:	26,750 lbs.
Weight Unladen	22,250 lbs
Weight Airportable:	23,000 lbs.
Ground Pressure (nominal):	9.15 lbs/sq. in.
P/WT Ratio:	18.5
Fuel Capacity:	100 gallons plus 50 gallons in jettisonable tanks if required.

2. Dimensions

Length (overall)	16 ft. 6 in.
Height (to roof)	6 ft. 2 in.
Height overall reducible to:	6 ft. 4 in.
*Width (overall)	8 ft. 6 in. in excluding camouflage staples
Width (over tracks):	8 ft. 1½ in.
Ground Clearance:	1 ft. 4 in.
Track Centres	7 ft.
Length of Track on Ground	9 ft.

*Width with camouflage staples will be 8 ft. 8½ in.

3. Armament

(a) Pintle mounting on Vehicle Commander's Cupola for 30.in. Browning MG or the GPMG.

(b) Six boxes ammunition 1500 rounds.

(c) Built-in facilities to enable the vehicle to be converted by the crew to 3-in. or 81-mm mortar role, including firing hatch in roof and stowage for 100 rounds of ammunition.

(d) Built-in facilities to enable the vehicle to be converted by the crew to carry the WOMBAT and 15 rounds of ammunition.

4. Vision

Driver: Head-out for opened vision.
Single wide angle periscope for closed down vision.
Facilities for replacing the Infra-red Periscope when available.

Vehicle commander: 360° rotation Cupola with three periscopes.

5. Armour. To be notified.

6. Performance

Maximum Road speed	34.3 mph
Vertical Obstacle	2 ft.
Maximum Gradient	35°
Shallow Fording	6 ft but see "Flotation" para 11.
Airportability	AW660—Mk. 2 Beverley

7a. Engine—B81—Initial Production

Make	Rolls Royce B81—8F (Dry Sump)
Type	Straight Eight Petrol Engine Liquid Cooled
Bore and Stroke	3¾ in. × 4½ in.
Number of cylinders	8
Compression ratio	6.5:1
Maximum B.B.P. (Gross)	220 @ 3750 rpm
Maximum Torque	330 ~~342~~ lb./ft. @ 2750 rpm
Coolant Capacity	7½ gallons
Oil	4 gallons

7b. Engine—K60—Later Production

Make	Rolls Royce K60
Type	Opposed ~~Piston~~ 2 Stroke C.1
Bore and Stroke	3 7/16 in. × 3.6 in. × 2
Number of Cylinders	Six
Maximum B.H.P. (Gross)	240 @ 3570 rpm
Maximum Torque	~~600 lbs~~/ft @ ~~750~~ rpm 379 @ 2500 r.

8. Suspension

Type	Torsion Bar—five units per side, rear idler
Wheels	5-25 in. dia. rubber tyred double wheels per side.
Shock Absorbers	On front and rear stations.

9. Tracks

Type	Dry pin, webbed and spudded
Width	13½ in.
Pitch	3.93 in.

10. Transmission

Gearbox	GM ~~Allison~~ Allison TX200
Final Drive	Straight Spur Reduction
Steering	Cletrac Unit
Brakes	Girling 14 in. × 3 in wide INCORPORATED IN STEERING UNIT.

11. Flotation

Freeboard—Collapsible screen not erected, 5 in with full payload. Collapsible screen erected, 24 in with full payload.

12. Versions of FV 432 for use in the Infantry battalion

(a) Section APC. Normal version. One B47 radio. Carries one rifle section at War Establishment.*

(b) Platoon HQ APC. As for the section APC but with a C42 radio in addition to the B47. Carries a rifle platoon HQ.

(c) Command APC. The two APCs in each company HQ, three in battalion HQ (including one for the signal troop) are command APCs. Each of these is fitted with a set of "furniture" including such items as map boards, seats, etc. They are equipped with radios as follows:—

Company HQ		C42—C42—B47
Battalion HQ	(two)	C42—C42 (No 3)—C11—A13
	(one)	C42—C42.

(d) Ambulance APC. One per rifle company and one in battalion HQ. Equipped to carry four stretcher cases. Fitted with B47 radio.

(e) Mortar APC. Two per support platoon. Carries the medium mortar, its crew and 100 rounds of mortar ammunition. The floor is reinforced to enable the 81 mm mortar to be fired from the vehicle through the roof hatch. Fitted with C42 radio.

(f) Anti-tank APC. Two per support platoon. Carries the WOMBAT anti-tank gun, its detachment and 15 rounds of anti-tank ammunition. The WOMBAT cannot be fired from the vehicle, but is quickly dismounted by means of two metal ramps which lower at the rear of the APC. Fitted with C42 radio.

**NOTE:* Certain other normal version APCs in the battalion have a C42 radio, eg, support platoon HQ APCs, defence and provost APC, intelligence section APC, mortar and anti-tank APCs, etc.

APPENDIX B

SUGGESTED COMPOSITION OF R AND O GROUPS

	Battalion	Company	Platoon
	Battalion commander	Company commander	Platoon commander
	Intelligence officer	Batman/operator	Runner
R	Signal Officer	Runner	
group	Protection party	Support platoon commander	
	Supporting arms R groups	Supporting arms representatives	

	OC HQ Company and/or reconnaissance and assault pioneer platoon commanders		

	Battalion R group	Company R group	Platoon R group
	Company R groups	Platoon R groups	Section commanders
	Reconnaissance platoon commander	Support weapon section commanders	
O group	Assault pioneer platoon commander	Supporting arms representatives	

	2IC	Company 2IC	Platoon sergeant
	Adjutant	CSM	No. 1 IC 2-inch mortar
	MTO	CQMS	
	QM		
	Medical officer		

Notes:—

O Group Personnel listed below the dotted line will be included only when circumstances allow, that is when there is adequate time for preparation.

R Group Personnel listed below the dotted line will be present in accordance with the wishes of individual battalion commanders, together with certain others on some occasions.

APPENDIX C

BATTALION DEPLOYMENT DRILL—ACTIVITY OF BATTALION GROUPS

Stage	In R Gp	Coy R Gps	Pl R Gps	Harbour Party	F Echs (Main Body)
1	CO issues warning order to bn in conc area Bn R gp moves fwd to make recce CO makes plan	Coy R gps move fwd from conc area to O gp RV		Moves fwd to recce and lay out assembly area	Prepares for battle in conc area under bn and coy ZICs.
2	CO prepares orders.	Coy comds receive briefing from IC and make preliminary recce of ground.	Pl R gps move up to assembly area with main body. (NB. if time is short certain selected pl comds may precede main body.)	Complete layout and arrange reception of main body.	Moves up from conc area to assembly area under bn ZIC.
	CO gives out orders to bn O gp	Attend COs' O gp		Guides meet and take sub-units to allotted areas	Arrive in assembly area

APPENDIX C

BATTALION DEPLOYMENT DRILL—ACTIVITY OF BATTALION GROUPS

Stage	In R Gp	Coy R Gps	Pl R Gps	Harbour Party	F Ech (Main Body)
1	CO issues warning order to bn in conc area Bn R gp moves fwd to make recce CO makes plan	 Coy R gps move fwd from conc area to O gp RV		 Moves fwd to recce and lay out assembly area	 Prepares for battle in conc area under bn and coy 2ICs.
2	CO prepares orders CO gives out orders to bn O gp	Coy comds receive briefing from IC and make preliminary recce of ground. Attend COs' O gp	Pl R gps move up to assembly area with main body. (NB. if time is short certain selected pl comds may precede main body.)	Complete layout and arrange reception of main body. Guides meet and take sub-units to allotted areas	Moves up from conc area to assembly area under bn 2IC. Arrive in assembly area

3	CO returns to assembly area and briefs 2IC and Adjt. (This depends on time available. IO could do this).	*(a)* Coy comds give out orders to coy O gps *(b)* Coy O gps return to assembly area *(c)* Coy and pl comds tie up with sub-unit comds of sp arms			Coys marry up with sp arms.
			P1 comds give out orders to pl O gps.		Pl comds brief pls.
4					Main body moves to FUP

APPENDIX D

BASIC INFANTRY ENGINEER SKILLS

Skill (a)	Basic Trg (b)	Refs (See Appx 1 to this Anx for FEMW details) (c)
1. Elementary Fdworks		
(a) Use and care of tools *(b)* Knots and lashings	All Inf	FEMW No. 1, Basic Fd Engr Part 1 (All arms) Part 2 (Aslt Pnrs)
(c) Wpn pits or fire trenches *(d)* Simple shelters incl revetting and drainage	All Inf	FEMW No. 2; Fd Defs Part 1 (All Arms) WO Code No. 9464
(e) Const of obs (incl wire) and rd blocks *(f)* Strengthening and def of buildings	All Inf Aslt pnrs	FEMW No. 2A; Obs Part 1 (All Arms) WO Code No. 8666
2. Use of Explosives		
(a) Explosive aids to digging	All Inf	FEMW, No. 3; Dmls. Part 1 (All Arms) Part 2 (Aslt Pnrs)
(b) Use of Bangalore torpedoes (Gapping Wire)	Rifle coys and Aslt pnrs	
(c) Prep simple dmls (destruction of eqpt., cratering, hasty dml of brs)	Aslt pnrs	
(d) Aslt dmls		
(e) Battle simulation		

(a)	(b)	(c)
3. Mine Mechanisms *(a)* Working knowledge of current British mines, igniters and trip flare mechanisms *(b)* Foreign mine and igniter mechanisms as applicable to theatre of ops	All Inf Aslt pnrs	A. FEMW No. 4; Mines—Individual Mechanisms B. Mine Warfare Trg Posters WO Code 9510 & 9496 C. Local Engr Fd Sqn.
4. Minefd Laying *(a)* Lay and arm current British mines *(b)* Minefd marking *(c)* Lay and record patterned A pers, A tk and mixed minefds	All Inf Rifle coys and aslt pnrs	FEMW No. 5; Laying, recording and marking of minefds: Part 1 (All Arms) Part 2 (Aslt pnrs)
(d) Scattered laying of British mines *(e)* Laying and recording of anti-lift and booby trap devices in conjunction with mines	Aslt pnrs	FEMW No. 7; Booby Traps
(f) Use of captured en mines		FEMW No. 4; Mines—Individual Mechanisms Mine Warfare Trg Posters WO Code No. 9496
5. Mine Detection and Clearance *(a)* Detection A tk and A Pers mines and A Pers devices and booby traps by visual, prodding and mine detector techniques *(b)* Clearance of mines in isolated locs by pulling or, if nec, by lifting *(c)* Minefd breaching using Baby Viper and Bangalore torpedo eqpts	Rifle coys and aslt pnrs	FEMW No. 6; Detection and clearance of Mines Part 1 (All Arms)
(d) Minefd recce and hand breaching drills in the face of the en. Also safe lane marking	Aslt pnrs with assistance	FEMW No. 6; Part 2 (Aslt pnrs)

(a)	(b)	(c)
6. Booby Traps		
(a) Knowledge of en booby trap habits, places to avoid and behaviour in booby trapped areas.	All Inf	FEMW No. 7; Booby Traps
(b) Use of booby trap warning signs	All Inf	FEMW No. 7; Booby Traps
(c) Clearance of own and en booby traps	Aslt pnrs	FEMW No. 7; Booby Traps
(b) Setting of A Pers devices and booby traps using standard or improvised mechanisms	Aslt pnrs	FEMW No. 7; Booby Traps
7. River or Water Crossing		
(a) Elementary Watermanship	All Inf	FEMW No. 8; Aslt River Crossing Part 1 (All Arms)
(b) Use of Aslt boats and recce boats	All Inf	FEMW No. 8; Aslt River Crossing Part 1 (All Arms)
(c) Improvised small craft and individual flotation	All Inf	FEMW No. 8; Aslt River Crossing Part 1 (All Arms)
(d) Inf Aslt Rafts; Const, op and ferrying methods	Aslt pnrs, assisted by rifle coys	FEMW No. 8; Aslt River Crossing Part 2 (Aslt pnrs)
(e) Improvised rafts and flotation devices; const and op	Aslt pnrs, assisted by rifle coys	FEMW No. 8; Aslt River Crossing Part 2 (Aslt pnrs)
(f) More advanced watermanship	Aslt pnrs, assisted by rifle coys	FEMW No. 8; Aslt River Crossing Part 2 (Aslt pnrs)
8. Simple Roads and Tracks		
(a) Const and maint of temp tracks incl use of materials such as fascines, corduroy, metal tracks bituminous hessian and duck boards	All Inf	FEMW No. 1; Basic Fd Engr. Part 1 (All Arms)
(b) Repair of potholes in earth and macadam	All Inf	FEMW No. 1; Basic Fd Engr. Part 1 (All Arms)
(c) Const of simple culverts of improvised materials	All Inf	FEMW No. 1; Basic Fd Engr. Part 1 (All Arms)
(d) Const of earth rds incl side and cross drains	Aslt pnrs	FEMW No. 1; Basic Fd Engr. Part 1 (All Arms)
(e) Simple improvised brs.	Aslt pnrs	FEMW No. 1; Basic Fd Engr. Part 1 (All Arms)

(a)	(b)	(c)
9. Water Sup *(a)* Erection of unit water pts using hand op pumps *(b)* Water testing, filtration and sterilization	All Inf Aslt pnrs	FEMW No. 1; Basic Fd Engr. Part 1 (All Arms)
10. Simple Accn. Dugouts, lean-to shelters and tropical huts. Temp. san accessroies.	All Inf	FEMW No. 1; Basic Fd Engr. Part 1 (All Arms)
11. Fd Machines. Cordage, SWR, chains, tackles, jacks, winches, anchorages, derricks, sheers, gins, and aerial ropeways	Aslt pnrs	FEMW No. 1; Basic Fd Engr, Part 2 (Aslt pnrs)
12. Unexploded Bombs. Recce, reporting, protection and simple removal	All Inf	FEMW No. 9; Unexploded Bomb Recce and Protection, Part 1 (All Arms)

APPENDIX E

SPECIAL CHARACTERISTICS OF THE SARACEN APC

1. **Engine**
   B80, 8 cylinder. 160 BHP

2. **Drive**
   6 wheel drive.
   4 wheel power assisted steering.

3. **Range**
   200 miles maximum
   160 miles cross country

4. **Speed**
   Maximum—40 mph with governors.

5. **Armour**
   Thin armour plate—½ to 1 inch thickness.

6. **Armament**
   Turret mounted .30 Browning.
   Smoke dischargers—6.

APPENDIX F

QUICK ORDERS OVER RADIO

1. The following are suggested headings for quick verbal orders given over the radio.

a. **WNG O.** This will be issued as soon as possible after "Contact" as a result of a quick map recce. The suggested format is as follows:—

WNG O	"Hello 39 for CC, WNG O
SIT (Summary of Contact Report, grouping if known)	SIT. En outpost in wood to our front. Grouping callsign T24 and callsign G11
MSN Call sign [to attack obj]——	MSN. Callsign 30. Wood grid ref 123456
RV ——	RV. Re-entrant 111455
H hr ——	H hr NOT before 1200 hrs.
Orders in—— mins.	Orders in seven mins.

Note: The square brackets indicate the parts of text that should NOT be transmitted

b. **Orders.** These will be issued as a result of joint planning by the coy comd (who has assumed comd), armd comd and FOO. The suggested format is as follows:—

Orders	"Hello CC, G11 and T24. Orders
SIT (Any changes in SIT plus grouping)	SIT. NO change.
MSN (confirmation of callsign [to attack] and obj.)	MSN. Confirmed.
EXEC——flanking;——up; ——phase; ——incl to——	EXEC. RIGHT flanking; two up; one phase; wood incl to callsign 31
Dismounting Area——	Dismounting Area. 124456
Roger so far, over.	Roger so far, over.
H hr——	H hr. 1205 hrs.
Reorg [Direction]——	Reorg. NORTH plus 300.
Fire Plan (if finalised)	Fire Plan. Smoke to FUP then HE on obj H-2 to H+6
Spec Instrs.	Spec Instrs. Mov from RV 1150 hrs. OVER".

APPENDIX G

EXAMPLE OF AN OP LOG

Unit: 1 KOSB

OP Location: 657495

Map: 1″ Sheet 20

Serial	Date	Time	Event	Remarks or Action Taken
1	24 Nov	0736	3 MCs moving WEST along rd 4467 Disappeared into wood 443673	Arty OP info
2	,, ,,	0745 0746	En arty. 12 rds HE rd junc 776257. At least two guns firing bearing 160 degrees	Shelrep sent 0749 hrs
3	,, ,,	0810	Five men with maps on hill 783564 observing our area through binoculars.	IO info by telephone
4	,, ,,	0830	En MG Post loc at 782416	Coy comd info by telephone. Engaged by mor pl.
5	,, ,,	0900	Incoming Relief took over Handed over by: T. Atkins Cpl Taken over by: A. Nutter Sgt at 0900 hrs. Visibility 1,000 metres	

APPENDIX H

INFORMATION REQUIRED BY ADVANCE PARTY

1. Advance party representatives must list all points and information required before going forward to the unit to be relieved. The following are the main points about which various officers should receive full details, though many points are common to two or more.

(a) **CO**

Enemy dispositions
Enemy habits especially patrolling activities
Enemy reactions to movement and fire
Enemy minefields
Locations to be relieved
Dispositions of units on flanks
Artillery and mortar DF and DF/SOS tasks
Own OPs
Patrol reports and patrol charts
Wire
Own minefields and gaps
Details of dead ground, particularly enemy approaches to the positions which permit move by day
Communications, especially to OPs
Location of transport lines
What vehicles, if any, kept in the battalion area
Weapons, ammunition and trench stores, especially cable, to be taken over
Situation about civilians in the area
Cooking and feeding arrangements
Any special difficulties about evacuation cases from forward posts.
Location of RAP
Routes to Brigade Headquarters

(b) **IO**

Trace of enemy dispositions
Trace of own dispositions and of troops on flanks
Map showing enemy fixed lines
Patrol chart
Minefield charts—own and enemy
Information about wire—own and enemy
Location of own and suspected enemy OPs
Trace of DF and DF/SOS tasks
File of patrol reports
Intelligence section log
Shelling reports
Track discipline
Enemy habits

(c) **Mortar Command** (if mortars concentrated)
Dispositions
Tasks and ranges
Alternative positions
OPs
Range cards and panoramas
Enemy dispositions and habits
Any orders specially affecting mortars
Communications
Position of Headquarters, companies and battalion
Administrative arrangements
Ammunition supply and dumps

(d) **Company Commanders**
Battalion dispositions, maps and air photos
Information about enemy habits, snipers, patrols, MG and mortar positions, mines, wire and shelling
Detailed company dispositions, including number of men in each section.
Arrangements for artillery support
Light signals
Intercommunication plan position of units on flanks
Company and other local OPs
Night dispositions including listening posts
Bearing board
A tank and 2-in mortar tasks
Tripods
Trench stores
Runners' routes
Details of dead ground
Position of battalion support weapons
Gas alarm
Vehicles in the area
Feeding and sanitary arrangements

(e) **Reconnaissance Platoon Commander**
Duties include:—
Dispositions of radar sets
Location of enemy nuclear weapons and anti-tank guided missiles
Radar or infra-red deception plans
Location of enemy OPs
Observation of enemy habits.

2. Fire Plan

(a) The most important, and the most intricate subjects, which the Commanding Officer and company commanders must grasp, in all its detail, is the fire plan.

(b) There is a tendency to think of this in terms of artillery, mortars and anti-tank guns only. While these are the basis, it is essential to get a clear picture in the

mind of how they, coupled with MGs, tanks (main armament and Browning), and flanking sub-units, can be brought to bear at each and every point of the front.

(c) Reliefs will often be carried out at short notice, and the handover of the fire plan may be little better than the passing of a large number of traces and target numbers. However, it is not until each commander, sitting in the bottom of his command post at night, can see in his mind's eye exactly what fire is coming down at any one point, that he can fight the battle with a sure touch. One tank Browning firing perhaps from a neighbouring company area, at the right time, will be more effective than the divisional artillery two minutes too late.

3. **DFs.** It will be a great help to a company commander if he can see the DFs registered on his own front. If this is not practical, for reason of secrecy, then he must have them pointed out on the ground. The map reference will not suffice, unless it is impossible to see on the ground.

4. **Minefields**

(a) To avoid casualty to our own troops, it is important that minefields of all types are handed over properly. The location of fields, their perimeter fences, and lanes through them, must be well known to the incoming battalion.

(b) When time is available the best way is for representatives of the incoming and outgoing battalions jointly to "beat the bounds" of all minefields in the area. This may take several nights. Where possible a representative of the supporting engineer field squadron should be present at the hand over.

(c) (i) The task of taking over the minefields may well be allotted to the Intelligence Officer assisted by the assault pioneer Warrant Officer.

(ii) In the case of protective minefields which have been laid by the "outgoing" battalion, a copy of the Minefield Record form (AF 4017 A) must be handed over to the "incoming" battalion.

(iii) Hand-overs, including "beating the bounds" should also take place at company level.

(d) If time, or enemy action, does not permit "beating the bounds", marked air photographs are a most accurate and satisfactory method of hand-over in addition to marked maps which must be given to the incoming battalion, whether or not air photographs are available.

"You cannot go into action with an open book in your hand. You must then rely on what your study and experience has already taught you and hope to make the best use of what you know. And to avoid being found wanting, you must know a hell of a lot".

Attributed to a fly-fisher, Candlemas, 1964

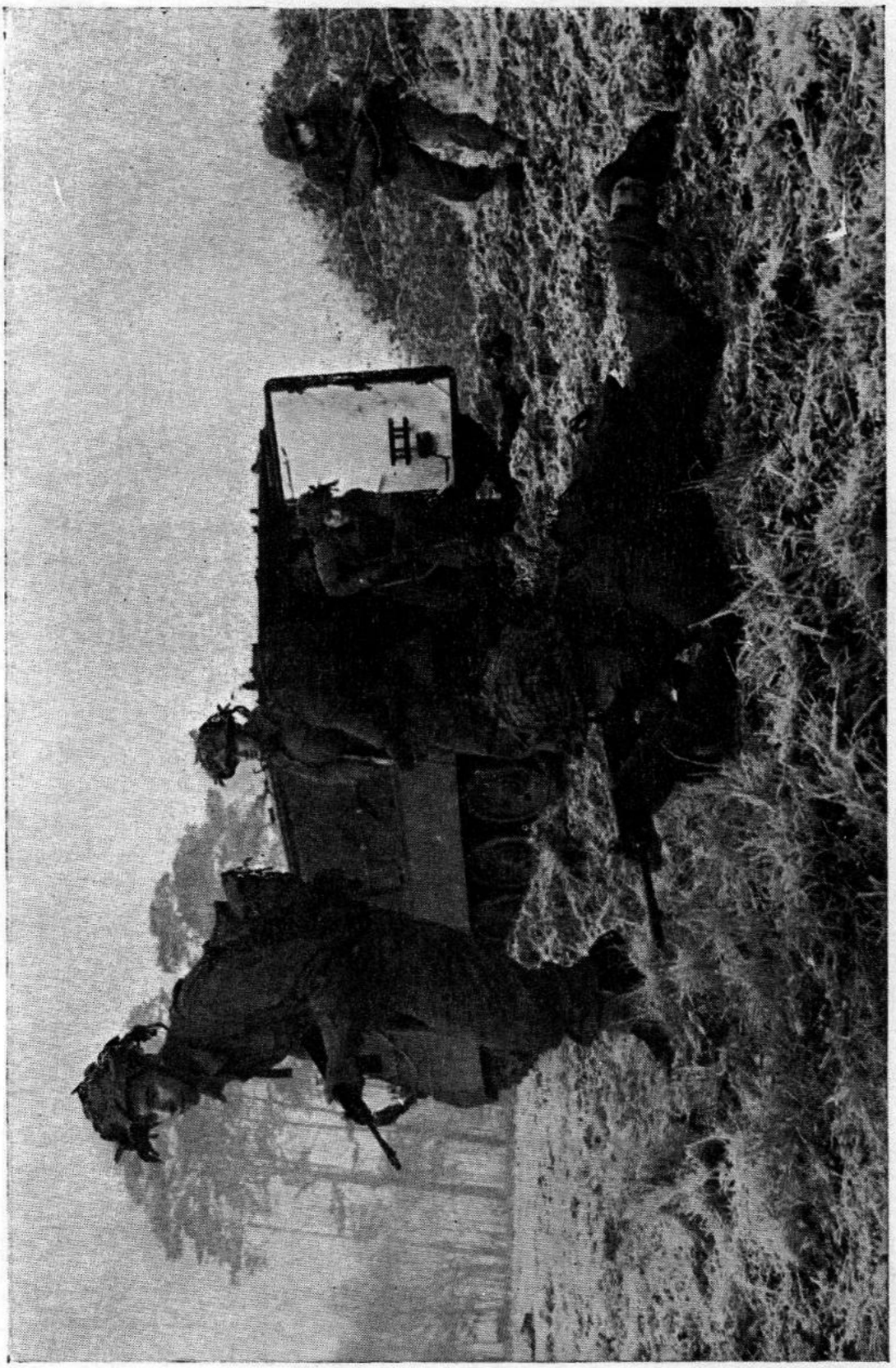


PLATE 1.—Infantry dismounting from an APC (FV 432)

PLATE 2.—A general purpose machine gun in action in the light role

PLATE 3.—The general purpose machine gun in the sustained fire role

PLATE 4.—The general purpose machine gun in the sustained fire role—aiming through the dial sight

PLATE 5.—An 81 mm mortar detachment in action

PLATE 6.—A Carl Gustav anti-tank gun in an action position. The breech is open and a round is being loaded

PLATE 7.—Vigilant anti-tank guided weapons in an action position

PLATE 8.—Loading a WOMBAT battalion anti-tank gun on to a landrover

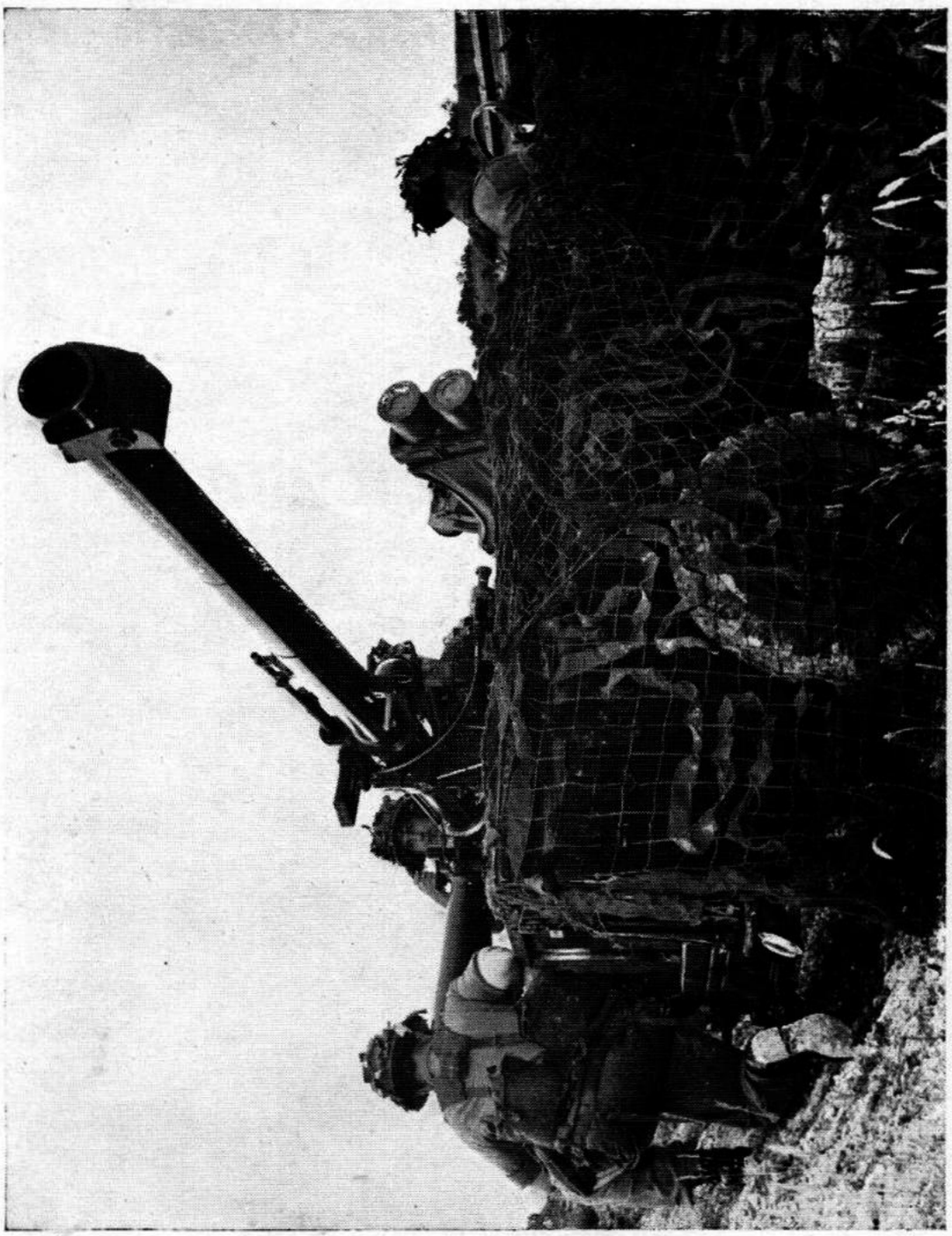


PLATE 9.—The WOMBAT battalion anti-tank gun ready to fire in the "in action" position in the vehicle

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